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A conference, sponsored by the American Association of Junior Clearinghouse for Junior College Information, and the UCLA Junior Colleges, the California Junior College Association, the ERIC Clearinghouse for Junior College Information, and the UCLA Junior College Leadership Program, was held July 1967 at University of California at Los Angeles. Section I of the report, "The Setting," contains papers on the current state of the experimental college, the role of foundation and Office of Education grants on long-range research, the limitations of TV and computer-assisted instruction, and priorities for research. Section II, "Aids to Innovation and Experimentation," covers two centers of innovation, budgeting for innovation, remarks by a "vice president in charge of heresy," innovation opportunities in evening programs, and the publisher as an agent of change. Section III, "On the Road," presents a tutorial program, a progress report on a 2-year experiment, audio-tutorial instruction, acquiring a degree by TV, and faculty involvement in innovation. Section IV, "Dreams for the Future," includes faculty rotation, electronic teaching in remote classrooms, experiments in a multi-campus district, a sensorium, and a "sidewalk" or minimum facility college. Section V, "Evaluation," cautions against pursuing mere superficial change in techniques, methods, media, or means, and advocates concentrating on the achievement of ends, on working toward observable change in the students' abilities. (HH)

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The Experimental Junior College

*A Report of a Conference Sponsored by
the American Association of Junior Colleges,
the California Junior College Association,
the ERIC Clearinghouse for Junior College
Information, and
the UCLA Junior College Leadership Program*

July 10-12, 1967

Edited by
B. Lamar Johnson

Occasional Report No. 12

Junior College Leadership Program
School of Education
University of California, Los Angeles

January 1968

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PREFACE

Evidence of interest in innovation and experimentation in the junior college is suggested by the attendance of more than three hundred educators from twenty-five states, the District of Columbia, and Mexico at the National Conference on the Experimental Junior College, held at the University of California, Los Angeles, July 10-12, 1967. Plans and developments reported and the vitality of discussions which followed the presentation of papers provided additional evidence.

The Conference was held mainly in response to recommendations made at an earlier (February 23-26, 1967) invitational seminar sponsored by the UCLA Junior College Leadership Program with the cooperation of Science Research Associates, Inc.¹

Current innovative junior college practices and programs were described, as well as plans which aid innovation and experimentation. Emphasis was given, however, to a "Look to the Future." R. Louis Bright, for example, pointed to the roles which faculty members will assume in the "new age of educational technology," and in particular he explained his expectation that the junior college will assume instructional leadership in higher education.

Three other Occasional Reports from the UCLA Junior College Leadership Program treat topics closely associated with "the experimental junior college":

Islands of Innovation, by B. Lamar Johnson (UCLA Junior College Leadership Program, Occasional Report No. 6, 1964).

New Directions for Instruction in the Junior College (UCLA Junior College Leadership Program, Occasional Report No. 7, 1965).

Systems Approaches to Curriculum and Instruction in the Open-Door College (UCLA Junior College Leadership Program, Occasional Report No. 9, 1967).

The editor expresses his gratitude to William Harper, Director of Public Relations, American Association of Junior Colleges, for editorial services.

B. LAMAR JOHNSON

¹ *Invitational Seminar on the Experimental Junior College* (Palo Alto, Calif.: Science Research Associates, Inc., 1967).

SECTION I

The Setting

B. LAMAR JOHNSON

THE EXPERIMENTAL JUNIOR COLLEGE: 1967

Twenty-four months ago I launched an educational expedition into a little-known and sparsely inhabited region. It lay in an ill-defined area somewhere west of the mysterious Groves of Academe and south of the dreaded Isles of Pedagogy.

At the time, some of my associates skeptically regarded me as a kind of latter-day Columbus who was uncertain that he knew where he was going, unsure that he knew how to get there, unconvinced that he would know where he was when he arrived. In spite of these headwinds, I set sail hoping to discover and explore an elusive prize, the experimental junior college.

Two years ago, under the title "Needed: Experimental Junior Colleges," the initial report of my explorations was published in the *Junior College Journal*.¹ It contained an appeal for "the highest efficiency of operation" in our two-year colleges, and suggested the notable value that experimental institutions can have to the advancement of education.

"Now in the sixties," the report declared, "there appears to be a resurgence of interest in experimental colleges. Several have been founded and others are planned.

"Up to the present, however, the junior college has remained largely untouched by this upsurge of experimentation. The junior college has stood separate and apart from senior colleges, except to adopt some of their pioneering developments . . . to the best of my knowledge, no junior college is an experimental college."²

I bemoaned the lack of experimental junior colleges and recommended "that there be established in various sections of the country experimental junior colleges committed to leadership in innovation and experimentation within the framework of the role, functions, and organization of the community junior college."³

After that, I corresponded with forty educational leaders and asked them to send me the names of experimental junior colleges or experimental junior colleges which were being planned.⁴ A report of my observations and those of my fellow explorers, "Experimental Junior Colleges: Some Stirrings," was published in the *Junior College Journal* in October 1966 as a sequel to the coverage of my earlier adventures. Most of my respondents said they knew of no experimental junior colleges. A few, however, referred to examples of such institutions—existing or planned—including several colleges represented on the program of this conference: T.V. College of

¹ B. Lamar Johnson, "Needed: Experimental Junior Colleges," *Junior College Journal*, XXXVI, No. 2 (Oct. 1965), 17-20.

² *Ibid.*, pp. 18-19.

³ *Ibid.*, p. 20.

⁴ B. Lamar Johnson, "Experimental Junior Colleges: Some Stirrings," *Junior College Journal*, XXXVII, No. 2 (Oct. 1966), 6-9.

Chicago City Junior College, Oakland Community College and Delta College in Michigan, and Arapahoe Junior College in Colorado. Others mentioned were Alice Lloyd College in Kentucky, Western Piedmont College in North Carolina, Roger Williams Junior College in Rhode Island, Macomb County Community College in Michigan, and Golden West College in Southern California.

In addition, I learned of a pioneering resolution adopted by the Los Angeles Association of Junior College Administrators on March 9, 1966, which declared:

An experimental college should be established in the district to explore and try out developments and practices for the improvement of instruction and more effective utilization of resources in such areas as: study skills centers, forum-type rooms, closed-circuit television, programs for gifted students, programs for disadvantaged youth, programs for potential dropouts. The experimental college should become a major resource for encouraging experimentation in the other district colleges.⁵

The 1966 report, you will note, was somewhat more encouraging than that of 1965, although it contained a similar observation: "Junior Colleges are largely ignored when experimental colleges 'get together.'"⁶ It closed, however, with a statement reflecting the traditional spirit of the determined explorer: "It is, nevertheless, encouraging to find stirrings of innovative experimentation among junior colleges."⁷

Today, in discussing "The Experimental Junior College: 1967," I am able to draw upon findings and observations recorded in the journals of my two most recent adventures: (1) an invitational seminar on the experimental junior college, held in Palo Alto, California, in February 1967, and (2) a three-month, 13,000-mile national motor trip to study innovative developments in junior colleges in eighteen states.

SEMINAR ON THE EXPERIMENTAL JUNIOR COLLEGE

Sponsored by the UCLA Junior College Leadership Program and by Science Research Associates, Inc., an invitational seminar on the experimental junior college was held in Palo Alto from February 23 to 26, 1967. Discussions centered around the topics "The Experimental College: Progress, Problems and Prospect," presented by W. Hugh Stickler, "The Experimental Junior College," by John Lombardi, and "If I were Establishing an Experimental Junior College," by B. Lamar Johnson. In addition, there were reports of developments from junior colleges represented at the sessions, and an address, "A Publisher Looks at Innovation," by Lyle Spencer, president of Science Research Associates, Inc.

DEFINITION

One of the major problems confronting the seminar was that of definition. Some of those in attendance held that the experimental college is, and will continue to be, one of a very small number of institutions which are in a special sense committed to change—the Antiochs, the Goddards, the Stephensens.

Stickler represented this view as he observed, "The number of experimental colleges has never been large; it is not large now. Of the more than 2,200 institutions of

⁵ *Ibid.*, p. 9.

⁶ *Ibid.*, p. 9.

⁷ *Ibid.*, p. 9.

higher learning in the United States, at present only a score or at most two score can properly be called experimental colleges."⁸

On the other hand, it was suggested that the term is broadly inclusive and encompasses a wide range and number of institutions. Lombardi supported this view. After enumerating several circumstances under which experimentation takes place (by self-motivated instructors, under administration-sponsored programs, within special divisions of a college), he commented, "I venture the guess that every junior college administrator at this conference believes that the college with which he is associated is experimental or engaged in experimentation.

"I have deliberately avoided creating a litany of experimental junior colleges. I believe such a list would be unwise because some colleges which are labeled 'experimental' prove, on close inspection, to be so in name only, while others which are not considered experimental are, in fact, experimenting constantly. Then, again, it is difficult to determine which practices are experimental, which are not, and how many experiments must a college conduct before it is entitled to the label 'experimental'?"⁹

Some members accepted the views of Nevitt Sanford, a seminar consultant, who in 1960 wrote, "When we say 'Experimental,' we mean experimental in the scientific sense of the term. We do not mean merely trying something new."¹⁰ Others, however, suggested that a college which is committed to innovation and change—entirely apart from rigorous evaluation—may be designated as experimental.

Some conceived of an experimental college as an established institution which has proved itself as persistently committed to change—an institution, for example, whose commitment survives generations of presidents. Under this concept, Oakland Community College, for example, could not at this time be called experimental. In contradiction to his view, however, was one that would admit to the "inner circle" recently established institutions obviously committed to innovation.

The seminar did not come to agreement on definition. However, most members left with a deepened commitment to creativity and innovation as a basis of improvement, and also with an increased awareness of the need for examining and evaluating programs on the basis of their specific objectives, that is, their outcome in terms of the changes that occur in students.

I hope for and urge change and innovation in large numbers of junior colleges. But I insist that there is a pressing need for a small number of junior colleges that in a truly special sense are experimental. We need junior colleges which will become the Antiochs and the Goddards of the community junior college movement.

ISSUES

I have referred to a group of issues which clustered around the definition of the experimental college. There were, however, other issues to which the seminar addressed itself. I shall refer to four:

⁸ W. Hugh Stickler, "The Experimental College: Progress, Problems, and Prospect" (paper presented at Invitational National Seminar on the Experimental Junior College, Palo Alto, California, February 24, 1967, mimeo.), p. 2.

⁹ John Lombardi, "The Experimental Junior College" (paper presented at Invitational National Seminar on the Experimental Junior College, Palo Alto, Calif., February 24, 1967, mimeo.), p. 15.

¹⁰ Nevitt Sanford, "Theories of Higher Education and the Experimental College," in Seymour E. Harris, ed., *Higher Education in the United States, The Economic Problem* (Cambridge, Mass.: Harvard University Press, 1960), pp. 153-154.

1. On several occasions questions were raised about the ethics of experimenting on students. There was, as expected, widespread agreement that the welfare of students must not be compromised in the name of either innovation or experimentation.

2. The question of change for the sake of change, or change for the sake of improvement, emerged. The view most often expressed was that doing something new does not represent a value in and of itself. Rather, change has value only to the extent that it leads to improvement. Some members of the seminar argued, however, that change has a value, often unpredictable, in and of itself. The "Hawthorne effect" was cited to support this view.

3. The role of the library was debated. The emphasis typically given to the library in experimental colleges was noted, usually with approval. Also mentioned was the importance of vocational education in the junior college. And the suggestion was made that a library emphasis might be less appropriate in an experimental junior college than in an experimental senior institution. In general, this issue was resolved by agreement that the library can and should be centrally important, particularly if it is conceived of as a learning resource center which includes not only books and other printed matter but also contains a wide variety of audiovisual aids to learning.

4. The role of the administrator and of the faculty in the experimental junior college—particularly in launching innovations—was examined. Some members suggested that the dominant role should be the administrator's, while others supported faculty leadership.

The general view was that it is important to involve those affected by change in the planning of change; those who participate in making decisions which affect them are likely to behave in ways which support the changes.

Represented at the seminar were colleges which employ different approaches to achieving participatory leadership. Noted were the Delta College plan of employing a team of fourteen faculty members for an entire semester to study and observe innovative developments at first-hand; the Golden West College plan for involving faculty members in planning innovations; and the Oakland Community College plan under which a small corps of administrators planned the basic features of an innovative educational program before the employment of the faculty, with planned feedback from staff and students for use in improving the program.

PLANS IN OPERATION

A number of plans and projections were reported: the library of innovations and the weekend college where an associate degree may be earned by attending Saturday classes at Miami-Dade; the projected sensorium with a completely controlled teaching environment at Laney College; a tutorial plan of teaching at Arapahoe Junior College; a collegewide systems and audio tutorial approach to teaching at Oakland Community College; budgeting for innovation—with funds specifically set aside to employ faculty members to work on new developments—at the Junior College District of St. Louis; a seminar plan of teaching for all students at Marymount College of Virginia; the provision of an objective-oriented student document and faculty document for every course, with the encouragement of accompanying innovative plans for teaching, at Western Piedmont Community College; plans in remote mountain areas for "little red school houses" equipped for audiotutorial in-

struction via telephonic and closed-circuit television communication with the central campus at Los Rios Junior College District.

RECOMMENDATIONS

Among "suggestions for action" which emerged from the seminar were these:

1. Establish a teacher-exchange plan among innovative colleges.
2. Hold national and regional conferences on innovative developments in and for the junior college.
3. Include faculty members and students in the membership of such conferences.
4. Request the Junior College Information Clearinghouse at UCLA to give particular attention to reports on innovations.
5. Seek funds from foundations and from governmental sources for such endeavors as traveling seminars to observe innovations, and consortiums which engage in cooperative work among colleges.
6. Work cooperatively with appropriate representatives of industry, with and through such agencies as the recently organized Industry-Education Committee of the American Council on Education.
7. Develop an innovational inventory or checklist for junior colleges.
8. Establish a national film library on innovations for junior college teaching as a substitute for, or supplement to, visits by junior college faculty members to centers of innovation.
9. Seek means for improved communication and cooperative work between and among innovating junior colleges.
10. Encourage the establishment of experimental colleges, each of which demonstrates and evaluates one specific innovation such as sensorium, computer-based instruction, and electronically equipped college outposts in sparsely settled regions.
11. Establish a steering committee to explore plans for continuing and extending work started at the seminar on innovative and experimental junior colleges.

Some of these suggestions already have been followed. The Clearinghouse for Junior College Information has been asked to give particular attention to reports on innovation. A recent issue of the *Junior College Research Review*, published by the Clearinghouse, is devoted to "Experimental Programs in the Junior College."¹¹ Although it is, of necessity, based on the presently limited holdings of the Clearinghouse, the *Review* gives evidence of the interest which the staff has in innovation and experimentation, and the issue gives promise of future service which can have notable value for experimental junior colleges. A steering committee has been established to explore plans for continuing and extending the work started at the seminar. And a national conference on the experimental junior college has been held.

OBSERVATIONS OF AN EXPLORER

Earlier, I referred to my recent three-month, 13,000-mile trip during which I visited fifty junior colleges in eighteen states. In eight states I conferred with representatives of more than fifty additional two-year colleges. In my explorations, I was

¹¹ "Experimental Programs in the Junior College," *Junior College Research Review*, I, No. 5 (June 1967).

particularly seeking to identify innovations and experiments in the effective utilization of junior college faculty services. This is not the time, nor is this the place, to report the findings of my survey. My travels did, however, give me an opportunity to discover a number of developments and plans that are relevant to the experimental junior colleges. I visited and acquired a first-hand acquaintance with several colleges that were represented at the Palo Alto seminar last winter. I also learned for the first time about a number of colleges which apparently have experimental commitments. I would like to report briefly on plans and developments at eight colleges.

Roger Williams Junior College

The board of trustees of Roger Williams Junior College in Rhode Island has committed itself officially "to rebuild the institution as an experimental college." The definition of an experimental college used by the trustees is "an educational institution which stands ready to question and test all underlying assumptions regarding the teaching-learning process, the content of what is to be taught, and the very purpose of all aspects of the educational environment."

Such innovations as these have recently been launched at the college: an interdisciplinary program of general education, a tutorial method for teaching English, a work-study program in technological fields, an honors plan in social studies, audio-tutorial teaching in biology and physics. In addition, plans are under consideration for establishing a "satellite campus" in a project for housing the disadvantaged.

Emphasized at Roger Williams is the development of a notably high sense of faculty security. If the college actually "lives" the definition of experimental college which it at least nominally accepts, the staff must be willing and able to take the risk of failure. Obviously not all experiments can succeed.

Something of the spirit of this college is suggested by the fact that in May college-wide questionnaires were distributed to all students for use in evaluating all their instructors. Such an undertaking would clearly be possible only in a college with a notably high sense of faculty security.

Lee College

Lee College in Texas, located in a recently reorganized junior college district, reports a commitment to college-wide experimentation, the nature of which has not yet been defined. As a basis for projecting its plans, the staff proposes to survey innovative developments in education. In doing this, two types of seminars are planned for the 1967-68 college year: "in-residence seminars," at which visiting consultants will come to the college for meetings with the faculty; and "traveling seminars," in which groups of faculty members will visit selected innovative centers. Audio-type recorders will be used to record significant conferences and sessions of the traveling groups.

Golden West College

Planned as an experimental college and using an eclectic approach to experimentation, Golden West College in Southern California recently completed its first year of operation. Developments at the college include the offering of interdisciplinary

nary courses; the establishment of a faculty-centered counseling program with a small cadre of professional counselors assisting faculty members, all of whom serve as advisors to students; and the use of audio-tutorial teaching in biology, mathematics, and business. Current plans call for the introduction of an audio-visual-tutorial method of instruction in nursing. Research and evaluation are stressed as the basis for arriving at educational decisions.

Abraham Baldwin Agricultural College

In Georgia, I learned of plans being developed at Abraham Baldwin Agricultural College. Two years ago, the college was confronted with a 30 per cent increase in enrollment and a near-stationary budget. As the result of faculty-wide study of "what-to-do," a plan of audio-tutorial instruction has been introduced in biology with no financial savings but with increased student achievement and likely financial economy in the long term. Audio-tutorial instruction also is under consideration for use in the basic course in humanities at Abraham Baldwin. Team-teaching in large course sections is used in college algebra and American government.

Reports from Abraham Baldwin suggest that "Budget motivation" may have been a basic factor in stimulating the faculty to become experimentally minded.

Rock Valley College

When I visited Rock Valley College in Illinois the president informed me that the college has "a one-billion-dollar laboratory in the community."

At the time of my visit, thirty-two companies were signed up for the Career Advancement Program (referred to as "CAP") in which high school graduates are offered opportunities to prepare for employment in a variety of technological fields through a work-study plan. A student attends college half a day and is employed by one of the participating Rockford industries for half a day. The student's work in industry is coordinated with his classroom instruction and he is cooperatively supervised by both the college and the employer. By attending summer school, a student who "earns while he learns" can complete requirements for the Associate in Arts degree in two years. Although CAP now is limited to selected technological fields, it can be expanded to include, for example, health and business-related occupations.

CAP is clearly a jointly planned college-industry undertaking. Industry not only provides the college with "a billion-dollar laboratory," but it publicizes the program, and the college, through newspaper advertising, radio and television announcements, and direct mail to high school seniors.

Western Piedmont College

The staff at Western Piedmont College in North Carolina is engaged in a faculty-wide effort to build courses and curricula on the basis of specifically identified learning objectives. A manual which outlines procedures for planning courses has been prepared as a guide for use in developing a student document and a teacher document for each course. These papers state course objectives and identify teaching and learning activities, as well as instructional facilities and other materials.

An eclectic approach to teaching is used at Western Piedmont. Among plans currently used in various courses are programmed instruction (programs in varied

fields are available in the Programmed Instruction Laboratory), eyeball-to-eyeball confrontation (a modified type of tutorial teaching), audio-tutorial teaching, and problem-centered instruction in which students confront typical industrial engineering problems. Plans for computer-based instruction are being explored in cooperation with the "Research Triangle" in Durham, which contains outstanding computer facilities.

Santa Fe Junior College

The educational program of Santa Fe Junior College in Florida is being projected on a rationale which stresses the definition of college purposes in terms of changes in student behavior. This has required definitions of desired student behavior and an examination of the characteristics of students. The behavioral-objectives concept is stressed not only in courses but in extraclass activities. No such activity is approved until its objectives are stated in behavioral terms consistent with the purposes of the college. Each activity is evaluated, and decisions are made regarding its continuation or modification on the basis of its progress toward objectives.

At Santa Fe, the responsibility of being an "open-door college" is taken seriously. The college aims to provide successful educational experiences for the heterogeneous students whom it admits. Consistent with this view, widely varied courses are provided; counseling and guidance are stressed. A student at Santa Fe who fails to complete the minimum requirements of a course is assigned an "X" grade, which simply designates a need for more instruction in the course rather than a failure. In the future, the college aims to individualize this concept so that a student who does not complete a course may repeat only those particular segments of the course in which he is deficient.

Colorado Mountain College

Classes at Colorado Mountain College were scheduled to open for the first time in October. The college is committed to experimentation based upon a systems approach to instruction. As conceived at Colorado Mountain, this involves four steps: (a) defining immediate, interim, and terminal objectives; (b) providing appropriate learning experiences designed to achieve these objectives; (c) evaluating achievements on the basis of the objectives; and (d) systematically providing for feedback as a basis for improving the curriculum and instruction.

Plans for the college have been influenced by the program of Oakland Community College and by the work of Samuel Postlethwait of Purdue. In view of the influence of Oakland Community College, and of Postlethwait, it is not surprising that as classes open, the audio-tutorial plan—or as it is being projected at Colorado Mountain, the audio-visual tutorial—will be the dominant method of teaching. As they are at Oakland, learning laboratories will be open to students from early morning to late evening, five days a week.

The commitment of the college is not, however, to audio-tutorial teaching. Rather, its commitment is to a systems approach to instruction in which feedback and evaluation will be used in developing essentially eclectic plans for instruction, selecting the procedures that are found to be most effective in particular courses, in particular class sections, and with particular students.

In contrast to some experimental programs, special emphasis is to be given to vocational education at Colorado Mountain College. Work experience in business, industry, and agriculture will be featured.

The entire faculty will be employed for two months prior to the opening of classes. Group and individual work will feature the planning of instruction and instructional materials within the framework of a systems approach to teaching.

Colorado Mountain College and Oakland Community College have entered into a contractual arrangement for exchanging, for a fee, instructional materials. This contract may well point to a direction for cooperation on a number of fronts between and among experimental junior colleges.

CONCLUSION

It is perfectly clear that no college or group of colleges has a monopoly on experimentation and innovation. However, the colleges to which I have referred, as well as others represented at the February seminar, can be said to be representative of two-year colleges which are making special commitments in this direction.

On the basis of my recent observations and findings I have identified four conclusions:

1. There is increased interest in innovation and experimentation among junior colleges nationally. Interest in the February seminar on the experimental junior college and in this conference, and observations on my recent trip support this conclusion.

2. Experimentation and innovation are less frequently reported in vocational programs than in academic or general education offerings. Nevertheless, there are examples of special emphasis on vocational education in junior colleges with commitments to experimentation.

3. Experimental colleges—and this applies alike to senior institutions and to two-year colleges—tend to be innovative rather than experimental institutions. Actual, controlled experimentation and rigorous evaluation are given short shrift in the experimental junior colleges of 1967. This observation is confirmed by Monroe, who, in a recent California study, concluded:

- a) California junior colleges name the improvement of the quality and effectiveness of instruction as the number-one priority item on their list of needs.

- b) In no California junior college is the control of that quality a systematic enterprise based on examination of student changes following instruction.

- c) In spite of the numbers of statements of need for improved instructional evaluation, little change or innovation in evaluation has taken place or is planned for the near future.

- d) There is an increasing interest in and concern for rigorous and systematic evaluation among few, but a growing number of, junior colleges. Evidence to support this observation emerges from programs of colleges which are developing their offerings on the basis of specifically defined instructional objectives and from colleges which are committed to a systems approach to instruction.¹²

One final conclusion and observation would appear in order from this academic

¹² "Experimental Programs in the Junior College," *Junior College Research Review*, I, No. 5 (June 1957), 2.

explorer. Earlier, I confessed that two years ago some of my colleagues regarded me as an "uncertain Columbus," embarking on a journey in search of the elusive experimental junior college. In preparing this account of my adventures and in extracting citations from my journals, I have realized that the past two years of exploration have been worthwhile. It is true that I did not return with a map of treasure routes to mountains of silver and gold. However, I like to think that I have brought back something more valuable—a story of active imagination, dedicated enterprise, and quiet courage.

SAMUEL G. SAVA

THE FOUNDATION, THE U.S. OFFICE OF EDUCATION, AND THE EXPERIMENTAL JUNIOR COLLEGE

History seems to reveal that the junior college inherited the task of serving the educational needs that do not rightfully fall within the realm of either the university or the secondary school. Its evolutionary process seems to be the only rationale for this diversity. Today, it finds itself with the jobs of adult, vocational, and technical education, of liberal arts and general education, of college "prep" and "salvage," of feeding the four-year college as well as industry, of belonging to the community, of being private, of being public, of being a finishing school, a starting school, of being a ward of the state, of the local school district, the well-behaved child of the university, and of finding a way to shed the image of "junior."

This evolutionary diversification of effort has been transferred to the kinds of support the junior college program has been requesting and receiving from foundations and the U.S. Office of Education. These groups or agencies seem to be investing their funds in bits and pieces of an already complicated educational enterprise and accomplishing very little. As a result, many have ceased to support small self-interest projects and are now seeking responsible advice on how best to provide assistance to the junior college movement.

NEED AND POTENTIAL

It is my opinion that the greatest educational advancement in the twentieth century has been that of the junior college. We can't seem to build these institutions fast enough. The rate of growth is about one new junior college a week.

Growth alone further enhances the potential of the junior college. It is extremely difficult to introduce real change into an outdated educational empire at some outdated, overcomfortable institution of higher learning or into the existing public and/or private system of elementary and secondary education. There is also much evidence to show that if a *new* institution is created, it is feasible to take full advantage of both technological advances and of the educational insights that have been gained through various research efforts, and change can be forced upon the area surrounding the new institution. Unfortunately, approximately 70 per cent of the junior colleges created last year copied themselves after outdated four-year institutions. In about 50 per cent of the cases, the individuals responsible for creating the new institution failed to relate the institution to the needs of the community and/or to relate the institution to the existing educational systems.

There are two reasons for these failures. First, a lack of personnel qualified to conceptualize and to create new junior colleges, and, second, a lack of a system organized to provide assistance to individuals attempting to establish a junior college.

PRESENT ROLE OF FOUNDATIONS AND THE U.S. OFFICE OF EDUCATION

There are currently about sixteen thousand foundations in the United States. They vary in size from one with several billions of dollars to one that reported assets of twenty-nine cents. Their total market value is about *sixteen billion dollars*, and the group is spending about *eight hundred million dollars* a year on various activities. Approximately one-fourth of these funds went into educational types of projects in the past year.

Most of the education-oriented foundations administer their funds by announcing to the public a general policy that identifies their interest in educational activities, and by establishing a system to review the various proposals. The presentations are usually requested in this simple sort of outline form:

1. Name and address of tax-exempt organization which will be the recipient if a grant is made.
2. Relationship of individual signing the application to the applicant organization.
3. Amount asked and specific purpose.
4. Significance; that is, what the grant is expected to accomplish.
5. The need or problem, including the background.
6. The proposed solution and method of approach to this problem.
7. Use to which the findings will be put, including plans to publish or publicize results.
8. Relationship of this proposal to the foundation's program as discernible in its recent published reports.
9. Endorsement of request by qualified individual.
10. A detailed budget showing how the requested grant would be spent.

Many foundations have identified interests in the junior college movement and have made appropriate grants. In a number of cases, resources have been used to supplement state and local funds that prove to be inadequate to support a specific educational activity. There is nothing wrong with these types of expenditures; I only wish to raise the issue of priorities with respect to uses for such funds. In other cases, a study is completed and a written report of some sort is assigned a spot on a bookshelf to be forgotten. Very seldom do we have any organized follow-through.

This nonorganized, nonfruitful diversification of effort has been of some concern to several major foundations. As a result, many have changed their methods of support. They will no longer fund individual *ad hoc* projects, but will focus their resources to support entire systematic efforts that are programmed from beginning stages to implementation, to fiscal independence. This, to me, represents a step in the right direction.

The U.S. Office of Education also has been concerned about the problem of systems support and implementation. The Bureau of Research is now using a three-prong administrative approach:

1. Funds have been set aside to support individual projects in an effort to continue to stimulate ideas among individuals in our various educational settings.
2. Funds have been set aside to support the development of entire systems.
3. Funds have been set aside to support priorities identified by legislation or by some other source.

RELATIONSHIP TO EXPERIMENTAL JUNIOR COLLEGES

How does all this relate to experimental junior colleges? Perhaps I can best answer this question by first reviewing the points that I have tried to make.

1. The position of the junior college in our educational system is not clear. Its responsibilities vary from community to community. Its historical development has had a great deal to do with its diversification.
2. The potential of the junior college as a positive change agent can only be classified as excellent. However, lack of qualified personnel and lack of an organized information and assistance system have prevented exploitation of this potential.
3. Philanthropic and public financial support for junior colleges has been piecemeal and has promoted very little progress. The present trend is to support entire systematic efforts from their beginning stages to implementation and, finally, to fiscal independence.

The time is right to organize and establish a nationwide system of experimental junior colleges. Such a system would have several responsibilities.

1. It could foster, promote, and enhance an organized experimental process by establishing a network of communication among our most innovative two-year institutions.
2. It could serve as a national resource center for potential and existing junior college teachers and administrators. The Clearinghouse for Junior College Information could be an important part of the system.
3. It could be the leading force in advocating and, in many cases, organizing appropriate training programs for junior college personnel.
4. It could provide the leadership that foundations and federal agencies are seeking with respect to organized support for junior college programs.

This recommendation is submitted for your consideration.

R. LOUIS BRIGHT

THE NEW MECHANICS AND THE OLD JUNIOR COLLEGE

Junior colleges are versatile institutions. Consequently, the junior college represents a major hope for the future of higher education. Several two-year colleges are oriented toward the definition of behavioral objectives. I ask you, how many universities will fall into this same category? In my judgment, some junior colleges are ahead of any other area of higher education in the country today—and they will continue to be so. My own feeling is that five years from now, many junior colleges will be furnishing leadership that universities will begin to follow.

RESEARCH AND THE U.S. OFFICE OF EDUCATION

Historically, the U.S. Office of Education launched its research activities following the passage and funding of the Cooperative Research Act in 1958—at which time \$1,000,000 was appropriated for research. At that time, approximately three-quarters of the available funds were subsequently assigned to studies concerned with the education of the handicapped. From 1958 to 1965, there was a sharp increase in funds for the support of research. Roughly, these funds doubled every year—increasing from \$1,000,000 in 1958 to a total of \$70,000,000 in 1965. About one out of four proposals submitted to the Office was judged worthy of support by outside reviewers. During these years, the Office consistently had enough money to support all proposals that were judged to be meritorious.

Recently, there have been two developments which affect current procedures in the Office of Education. First, in 1965, the commitment of the Office changed from simply the support of research to the support of major development, demonstration, and dissemination activities (such as Educational Resource Information Centers—and Clearinghouses), and also to the preparation of educational researchers; and, second, in 1966, for the first time in eight years, the budget for research did not double. Actually, for the last fiscal year, 1967, we had approximately \$70,000,000. This may sound like a huge amount of money. Twelve million dollars of these funds were, however, earmarked for construction and could not be used for anything else. Accordingly, for other activities, we actually had \$58,000,000. Since \$8,000,000 were continuation costs for Research and Development Centers, the amount available for assignment decreases to \$50,000,000. Approximately \$20,000,000 were earmarked for the Regional Laboratories, and we spent about \$7,000,000 in training for research. Although this left \$23,000,000, we had \$19,000,000 in continuation

costs from projects that had been started during previous years. This, therefore, decreased to \$4,000,000 the funds available for new projects. Since this was inadequate, we worked very hard on making cuts in the \$19,000,000 continuation costs.

For the first time in the history of the office, we canceled projects and failed to renew projects which researchers expected to be continued. In this way, we gained another \$1,000,000 or so and therefore had some \$5,000,000 for new projects—about half of which were committed to our Small Grants Program. The limited funds which we had were for projects which include the whole range of education—from preschool activities and the nursery school, through the high school, junior college, and university. What we are trying to do now is to modify the program so that we will continue and perhaps increase our support for both small projects and for very large projects. Under present policy, we would propose to support very few projects in the \$50,000 to the \$300,000 range.

EDUCATIONAL TECHNOLOGY

Many new vocations and professions are continually being generated by the new technologies. These technologies affect the design of educational facilities, and they also affect the role of the faculty. In education, we can learn much by observing how technology affects other fields, such as medicine or engineering.

One of the common denominators of the entrance of technology into any field is that it changes that field from one of the individual artisan to an endeavor that requires a highly intensive cooperative team effort and activity. Instructional television can serve as an example. Although we have had instructional television for some fifteen years, I believe that any of us would be hard pressed to identify a single semester course in any field that demonstrates the actual potential of television in teaching.

Instructional television has a tremendous potential. But something is lacking. Television will achieve its potential in education only when we put together a team that includes representatives of at least four specific fields or disciplines:

1. The first team member must, of course, be an expert in the particular subject which is to be taught.
2. The second must be an outstandingly successful producer, who has demonstrated that he can "beat the competition" in commercial television. He must know the media, its characteristics, and, certainly, the "tricks of the trade." Actually, there is no reason why educational television should not be entertaining. We continually speak about the "serious student," but never about the "joyful student." The second member of our team may help change this practice.
3. Also represented on the team must be a system specialist—who is expert in defining specific course objectives in terms of observable student behavior—and who is also expert in designing learning experiences and in devising criterias and tests that will evaluate the extent to which objectives have been achieved. Important in the work of this team member is the concept of feedback—particularly very fast feedback for use in revamping material, revising tests, and revising sequences of presentation until the objectives are achieved.

4. The fourth member of the team must be a psychologist who not only knows the psychology of learning, but who is also familiar with the learning characteristics of the particular population for which the program is intended. He should also be acquainted with the concurrent out-of-college experiences of students—including what they are and what they should be.

It is clear to me that it will be impossible for us to demonstrate the capability of instructional television until we have put together a team—in fact, many teams—such as I have described, to work together to produce a televised course. And by working together, I do not mean holding committee meetings once or twice, and then having someone take the advice of the group and go out produce a course. I mean actually working together in planning, developing, and producing—step by step—a course for television. Working together continuously—and a very high respect for each other's capabilities—this interdisciplinary team could produce a superior televised course.

With their commitments to doctor's degrees and highly academic preparation, universities would have great difficulty in putting together interdisciplinary teams of the type which I propose. Experts in the discipline field must have doctorates. Systems specialists would also, in all probability, have doctor's degrees. In addition, competent psychologists with doctorates could, in all likelihood, be found. I challenge one, however, to find a first-rate motion picture or television producer with a doctorate. Also remember that if you really get a first-class producer, he makes twice or more the salary of that of any other member of the team. Teams such as I have suggested are essential. They are not, however, easy to assemble. If you examine commercial television productions, you will find that the only children's program with a high audience rating costs \$70,000 per hour. Highly rated adult programs cost a minimum of \$100,000 per hour. I really do not see how we can honestly expect educational sequences to cost less. Regardless of the technology—whether we are talking about instructional television, about programmed learning, or about computer-associated instruction—if we are to make the materials of the quality which the sciences and "commercial entertainment people" are making today, an investment of \$100,000 or more per hour can be anticipated. These are astronomical costs which a local educational institution cannot undertake, nor is this an undertaking which a foundation or the Office of Education could justify supporting at a single institution. One of the problems we have to face is how to decide what kind of major interinstitutional or national developments are needed. Clearly, one of the characteristics of the new technology in education must be a decision that professors will have to start using programs produced by someone else.

FACULTY ROLE

One of the serious problems of technology is that pertaining to the role of the faculty. One real danger is that people assume that technology can do everything. Clearly, it can do a lot more than most people think it can. It can teach almost all of the academic material that we ordinarily offer—and on an individualized basis. This is true whether we are considering reading, arithmetic, English composition, or history. If we identify academic objectives, technology can achieve them very effectively. There is, however, one area in which technology is deficient. This is the area

which I designate "the development of creative communicative abilities"—the ability to formulate ideas, the ability to express these ideas, and the ability to defend these ideas against criticism. Also included in this area is the capacity to speak competently before groups and participate in group discussions and decisions. I do not expect technology to achieve objectives of this type.

The definition of the role of the faculty is somewhat conditioned by Norbert Weiner's explanation that the most degrading situation with which a human being can possibly be faced is to asked to do something which a machine can do better. We must keep this factor in mind as we consider the role of the faculty. In other words, we should not ask the teacher to do something which technology can do better. We should, however, ask the instructor to do that which technology cannot do. In others words, one of the main roles for the faculty is to be responsible for the development of the creative communicative abilities. An additional essential function of the faculty will be to provide counseling and guidance.

Another responsibility of the faculty is, of course, to give assistance. This, as you know, occurs in schools throughout the country. I am reminded of the Oak Leaf School, an elementary school in Pittsburgh, with a completely individualized instructional program. Here you can enter a classroom which has in it children in grades ranging from one to six—and can see each of from eight to one hundred pupils diligently studying his own materials, completely independently of anyone else. When a child raises his hand for help and the teacher goes to his desk, the instructor may be asked a question on first-grade reading, second-grade arithmetic, third-grade history, or fourth-grade geography. In fact, sixth graders, last year, were studying introductory calculus. Accordingly, teachers in the room had to be prepared to answer questions on any subject in the first six grades—with calculus and other advanced subjects occasionally "thrown in." Offering assistance in this way represents a new role for the teacher. It is one which really is not too difficult at the elementary or junior high school level. I wonder, however, how many high school teachers would be able and willing to accept this role, and the problem becomes almost impossible at the collegiate level. If, however, we peer twenty years into the future, it is clear that junior colleges will have on their shelves varied course materials—let's say two or three different courses in any particular subject—so that individual students will be taking courses completely independently of anyone else. The junior college in a rural town can offer as wide an option of courses as is today offered by the largest university—and will teach them well. One development which will help us is the advancement of library technology. In the foreseeable future, the junior college will be able to have at a very reasonable cost library facilities that are equal to present holdings at the University of Pennsylvania or at Harvard.

I foresee that the number one question facing education twenty years from now will be: "Who will determine the curricular objectives for Johnny?"—nor for the state, not for the district, not for the school, not for the class, but for Johnny. Since Johnny will be able to pursue a curriculum different from that of any other student, the problem of selecting one appropriate for him is one of crucial importance. This is another faculty responsibility—and a most important one.

In the new age of educational technology, the faculty will assume many and varied roles—some of which will clearly be quite different from those of today.

COMPUTER-ASSISTED INSTRUCTION

This leads to a new area, computer-assisted instruction (CAI). One of its major features is its ability to perform diagnosis in depth. CAI offers intriguing possibilities in diagnostic testing. Computers can also automatically switch learners to supplementary materials which will meet specific deficiencies in their particular backgrounds. These contributions are particularly valuable when education is dealing with a heterogeneous population—such as in adult education programs, or in the comprehensive junior college, “an open-door college,” with a wide diversity of students. CAI has a tremendous potential for the junior college.

On the other hand, I do not believe that the computer has any large potential for instruction in the foreseeable future. CAI could do a more efficient job than can be done through the use of any other technique—in many fields of teaching. The costs are, however, currently prohibitive and are likely to remain so. I, therefore, do not anticipate use of the computer as a major tool of instruction, at least during the next decade.

There are, however, important other uses for the computer in education. Job openings and manpower demands are sharply increasing in computer technology. The computer has already drastically changed many professions. The work of the research physicist, the engineer, and the accountant has been drastically modified by the computer. We are also beginning to see evidence that the job of the lawyer and the physician will be greatly affected by the computer. As a matter of fact, it is hard to imagine a professional activity which will not be changed by the computer. We are clearly approaching the time when anyone who graduates from a four-year liberal arts college without experience in modern computer techniques will be severely handicapped.

With this background in mind, the Office of Education proposes to support projects which involve large computer installations to serve educational institutions—including high schools, junior colleges, and universities. The most important of these will be cooperative undertakings. They will involve the use of the computer in schedule making, testing, and record keeping. They will also provide students with experience in the use of computers. In participating institutions, some students will be vocationally trained—but all students as a part of their general education—will achieve an understanding of computers and of their use in solving problems.

Our present planning does not include projects in computer-assisted instruction.

CONCLUSION

The United States Office of Education aims to assume new and important roles. During the past decade, the Office has changed its emphasis. It now sees itself as taking a lead in encouraging research and development in educational technology of all sorts, and in helping define the new role of the teacher. The budget of the Office does not permit it to do all that it would like to do. It does, however, welcome all manner of innovative proposals from junior colleges, as well as from university-based educational researchers.

DAVID S. BUSHNELL

PRIORITIES FOR RESEARCH

For years this country has been thought to lead all other nations in its commitment to the goal of equal educational opportunity for all citizens. It is true that universal education in the U.S. has been achieved for virtually all children between the ages of six and thirteen. At the high school level, the U.S. leads all other nations in the percentage of seventeen-year-olds enrolled in full-time schooling. Almost 70 per cent of the youngsters in the U.S. who started in school at age six actually graduated with high school diplomas.

Our leadership at the college level is indicated by the fact that only 4 per cent of the college-age youth in the European Common Market nations receive university degrees, in contrast to 20 per cent of their American counterparts. These seem to be heartening figures, especially when viewed in light of today's more advanced skill requirements.

Compared with most school systems abroad, our public and private educational institutions do pay attention to the need for optimizing the success of all students and do not stress the desirability of screening out students along the way. It has been our policy, not always successful, to provide students at the high school and community college levels with a varied educational fare designed to be useful for those who want to go on to higher education as well as those who will terminate their formal education at the end of twelve or fourteen years of school.

It is true that we are educating more of our young people than any other nation—but is this sufficient? Last year's class of college graduates represented only about 20 per cent of those who began their education sixteen years before. Nineteen per cent of this original group left school before the eleventh grade; 13 per cent did not finish high school. Thirty-five per cent entered college but only 20 per cent graduated. Thus eight out of ten of these students were candidates for jobs requiring less than a college diploma. Yet only two of these eight received any kind of occupational preparation during their formal years of education.

The remaining 60 per cent have historically had a limited number of options open to them. They have been able in the past to qualify for entry-level jobs that had few skill requirements, but these jobs are becoming fewer. A relatively small number have become enrolled in apprenticeship training programs, but, here again, there are a limited number of such openings to go around. Finally, a relative few will enter into community colleges or technical institutes for post-high-school education and training, but, unfortunately, a large number of these students will drop out before they can complete the two-year program.

It is here that the paradox becomes apparent. We as a nation have had the wisdom and the wealth to support a public education, and yet we are still unable to meet the educational requirements of a vast number of eligible students, particularly those from disadvantaged backgrounds. To quote Commissioner Howe, "Education pays lip service to the importance of providing an educational response for the wide range of students' aptitudes, abilities, and interests, but largely limits that response to general or academic studies of varying degrees or rigor . . . The significant number of students who languish along in secondary and higher education with mediocre academic records are testimony that we are providing inadequate and inappropriate response to the educational needs of many young men and women."

Unfortunately, much of what is now taught in our public schools fails to recognize that most students must enter the job market with not only job skills but with basic learning skills which make them capable of adapting to a changing technology. The tendency in the past to separate general and vocational education has penalized both those who are college bound and those who plan to quit at the end of high school or junior college. The academically oriented students are directed to college preparatory programs in the hope that this will enhance their chances for college admission. They have little opportunity to acquire a knowledge of the occupational world in which they will ultimately live and work as adults. At the same time, vocational or technical students receive too little opportunity to develop confidence in the basic educational skills which they must have if they are to cope adequately with present-day society. Those who plan to go on to college are not prepared to cope with the question "what happens if I have to drop out before graduation?" On the other hand, those exposed to current vocational training frequently find themselves being trained for a narrow range of job skills. Even if such students should qualify for their first job, they frequently change jobs or are faced with the need to adapt to a changing labor market. A third and larger segment of our public school population is not enrolled in either vocational or college preparatory programs. These general education students often receive a diluted program which, in too many cases, provides little academic or occupational preparation that is useful to them in the adult world. Obsolete and fragmented subject matter having little relevance to present-day demands stifles the potentiality of an integrated, absorbing curriculum.

In terms of the need and opportunity for providing for the optimum development of all students, the junior college has a unique role to play. It is neither a high school nor a university and it is available, for the most part, to any student. It is unnecessary for me to review the potential of a truly "community" college. It is sufficient to note that the junior college movement has added a new dimension—a place where the academic and the vocational are offered side by side with the customer having a significant role in determining the available courses of study.

Today's job seekers, faced with a continuing shift from production-oriented occupations to service and technical occupations, require a happy blend of cognitive, communicative, and manipulative skills. A man's ability to exploit new job opportunities and to adapt to changes in production methods will, in the future, determine his job security and earning potential. The education and training which

students receive today must fit them for jobs which will become available in the twenty-first century. Most technologists will be required to plan and manage production, to maintain automated equipment, to sell and service new products, and to provide services which are not at this moment even on the drawing boards.

The problems and questions associated with our present-day program of education indicates a need for a major redefinition of goals and overhaul of the educational process. Fortunately, the technology which has created many of the problems offers some hope for their solution. The computer, for example, is showing some potential for an intermediary between employers and school counselors, making possible far better information systems for funneling job needs to curriculum planners and counselors in the schools. Flexible scheduling, again through the use of computers, can make possible the development of learning experiences to meet the particular needs of individual students. The adaptation of the Socratic teaching method to individual students is within our grasp. Even games are being employed as a method of teaching young adults to think through appropriate career choices and to develop problem-solving skills.

The use of instructional television, single-concept film strips, video-tapes, teaching machines, and training simulators should be commonplace resources in the classroom of the 1970's. Textbooks validated through multiple exposure to homogeneous student groupings which gear themselves to the background, interest, and reading level of the student will be published. Experiments with tutorial programs, employing older students as tutors or subprofessionals in support of master teachers, offer hope for giving more intensive attention to those requiring remedial education, while, at the same time, helping to offset the spiraling cost of education. Under the stimulation of present federal legislation, new opportunities for research and demonstration of programs are now possible.

These opportunities are occurring at a time when there is pressure to provide today's student with the kind of educational fare which is relevant to tomorrow's demand. It would be a mistake to let employers, with their frequently narrow perspective of skill requirements, or even parents, with their sometimes unrealistic career expectations, dictate the type of education which should be available in our community and junior colleges. The educator and the employer should work together to determine the appropriate knowledge, skills, and attitudes which will qualify today's students for their life roles as employed adults and citizens.

What I am suggesting is an endorsement of the junior college movement. At the time the youngster enters a junior college, he should do so with the realization that he can, through his own initiative, develop those adaptive skills which will permit the realization of his fullest potential as a worker, as a citizen, as a parent, and as a life-long student. A student who graduates from a junior college or community college program should possess the necessary qualifications or behavioral skills which will maximize his choices in postschool activity. He might transfer to a university to pursue an academic degree.

He might accept his first full-time employment with the realization that he can continue his education in adult evening classes. The key point is that he should have before him several options from which to choose when he graduates.

Under the recent stimulation of new federal funds, expanded opportunities for

research, development, and training are now possible. By research, I mean those studies which offer to systematically test carefully stated hypotheses under controlled conditions. Development projects usually represent innovative programs in actual school situations. To qualify for funding, such studies must make provisions for a rigorous evaluation of results, so that, if the experiment is successful, it can be replicated elsewhere. Training support includes not only the training of research personnel (as authorized in Title IV of the Elementary and Secondary Education Act) but in-service and pre-service teacher training programs authorized under the Vocational Education Act of 1963 and the Higher Education Act. With this potential support, the junior college movement is in an excellent position to undertake innovative and experimental efforts to further the attainment of their unique and finest goals.

There are several problem areas and priority considerations which you may want to consider exploring with Bureau of Research support. These may be grouped under six categories—curriculum level, teacher-training and recruitment, organization and administration, guidance and counseling, evaluation and the development of institutional research capabilities.

1. Curriculum Development

- a. How can we assure that individual differences in learning rate will be accommodated?
- b. What methods or procedures will enable us to tap other than verbal reasoning skills in order to reach and teach those who have not adequately developed this ability?
- c. What combinations of manipulative and cognitive skills are necessary to prepare a person for today's jobs and the demands of community life? How can we combine vocational and general education so that those who leave the academic track get a second chance? Conversely, how can we assure those who travel the vocational route but later discover academic interests that they will not be penalized for their earlier commitment?
- d. How can we provide those with varying levels of ability with a range of educational fare so that they are assured of success in something?
- e. How can we recognize the diversity of skill training requirements for entry-level occupations and, at the same time, insure a quality education for all students?
- f. In the area of continuing education, how can we assist older adults who leave their primary career jobs because of age or health but are too young to forego active work and are seeking new fields of endeavor? What can vocational or occupational education do to facilitate these kinds of transitions as individuals seek to move from one phase of their work life to another? How can appropriate educational opportunities be made available to adults at the same time that it is most needed without undue economic sacrifices?

2. Teacher Recruitment and Preparation

- a. What are the unique demands and requirements of a junior college teacher function?
- b. What are the most efficient and viable teacher-training methods? (E.g., student teacher programs, clinical-professor roles, or internship models?)

- c. What is the role of teachers in the full use of the new instructional technology?
- d. What are the best sources of teachers and how can these sources be more fully exploited?
- 3. Organization and Administration
 - a. What state laws would best facilitate the full development and utilization of the junior college concept?
 - b. Where should the responsibility for junior colleges fit within the overall state department of education?
 - c. How can the problems of accrediting new courses be overcome and accrediting facilitated?
 - d. What should be the relation between high schools, junior colleges, and senior colleges within the same region or locale?
- 4. Guidance and Counseling
 - a. How can those who enter junior college with no well-developed career interest be made aware of the alternatives available to them?
 - b. How can occupational-role models be introduced to assist students in making appropriate career choices?
 - c. What methods should be instituted for interceptive students who drop out of transfer programs so that they might be redirected to meaningful occupational preparation programs before they are lost from the institution?
 - d. How can part-time and evening students' counseling needs be best met?
- 5. Evaluation
 - a. Are we meeting the local, regional, and national manpower requirements and job opportunities of the immediate and long term?
 - b. How successful are the graduates of occupational training programs and transfers to colleges?
 - c. What relationship is there between the intensity of individual counseling and subsequent career choice and adjustment?
 - d. What are the costs and benefits of establishing two or more junior colleges in the same area?
 - e. How successful—in terms of actual student achievements—are the innovations which Lamar Johnson described earlier in this report?
- 6. Research
 - a. What should be the role of research in an institution which is primarily committed to education and training?
 - b. How can we provide junior college faculty members with the opportunity to test new approaches to learning?
 - c. What are the most effective techniques for providing training for experienced teachers who need to become more involved in research?
 - d. What means can best be made available to faculty members for them to test out alternative ways of teaching students of varying backgrounds and interests before the curriculum becomes locked into a single outline?
- 7. Adult Education
 - a. What breadth and nature of adult education is necessary to meet community needs?

- b. What should be the balance of "credit" and "noncredit" courses for adults?
- c. What should be the best arrangement for administering adult education courses during the evening where adults require a different type of instructor or curriculum fare?

These are some of the questions which must be examined and answered before significant improvement in community colleges is possible. It is encouraging for me to state that new research resources are becoming available and that those who are willing to participate in seeking solutions to these answers can now expect with some reasonable measure of assurance to find support for such interest. The funds are available; the concepts are taking form; now we need the wit to sell our programs, to erect the needed structures, to plan the curriculum, to recruit the teachers, and to open up our doors.

SECTION II

Aids to Innovation and Experimentation

DONALD L. LAUGHNER

VISITS TO CENTERS OF INNOVATION

In the spring of 1966, President Carlyon of Delta College requested and received \$75,000 from the Board of Trustees to finance a special study project by fourteen members of the teaching faculty during the fifteen-week semester in the summer of 1966. The purpose of the project was to seek out innovative practices and determine what implications they might have for Delta College. A key feature of the project was a series of on-site visits to sixty-four institutions, located in nine states. Although the majority of the visits were to community colleges, a few state colleges and universities, private colleges, and corporations were also included.

The visits were a major part of the project but they were by no means the only technique employed. Much time was spent in activities such as reading, discussion, meetings with consultants brought to the campus, in studying various internal operations and writing the report and recommendations.

Reports on the places visited and 147 recommendations were printed and distributed to every college employee. The president assigned each recommendation to the responsible persons or committees, and the implementation phase was begun.

Much time could be spent describing the activities which took place during the project or relating specific outcomes; however, the pertinent question to be answered here is: "Was the project an effective aid to innovation and change?" Before answering that question, it is necessary to explain the project team's view of the word "innovation."

The team agreed that innovation is a relative term and that any idea or method should be viewed in relation to Delta College regardless of how innovative it appeared to be from a national viewpoint. This operational definition might appear to be rather conservative to some, but it afforded the team the liberty of investigating methods that might be old and routine to some institutions but new and valuable to Delta. Likewise, the truly new ideas could be also evaluated with respect to their applicability to Delta.

Some of the major changes resulting from the project may not be innovative to some community colleges, but to Delta they represent significant strides toward the development of a comprehensive community college.

RESULTS OF THE PROJECT

The project team was recently reconvened to evaluate the progress of the 147 recommendations. Giving a scoreboard analysis is not too revealing, since there is a wide variance in the importance and scope of the recommendations. However, it

does give some indication of the activity during the last year relative to the recommendations.

Fifty-three of the recommendations have received no action. Most of these are intermediate or long range and may not be acted upon for several years. Thirty-one of the recommendations have received final action, either being implemented or disapproved. Forty-four recommendations were categorized as receiving attention with progress considered satisfactory. Nineteen recommendations were described as receiving some attention but progress considered unsatisfactory. Overall, the project team felt that the action taken during the first year was satisfactory and encouraging. The figures cited give some indication of the activity generated by the project, but a description of some aspects of the college today that have resulted from the project is more revealing.

Lack of evaluation was a primary concern expressed by the project team. Recommendations were made that suggested evaluation of every phase of the college and, in most cases, how the evaluation should be done. Controlled experiments were suggested for current methods in the remedial program and for the experimental methods suggested by the team. A comprehensive survey of faculty and students was recommended in several areas including television, audio-visual services, student activities, and the library. An evaluation of the administrative organization was recommended and several new positions suggested.

The attitude reflected in the recommendations, that no aspect of the college should escape evaluation, has led to a healthy skepticism well beyond the confines of the project team. It has also focused attention on a weakness in the college and has led to the formation of an Office of Institutional Research and the employment of a systems analyst.

A series of recommendations dealt with low-ability students and how they can be served more effectively. Some of these have been implemented but much more remains to be done. However, we now have a large group of faculty and staff who are aware of how little has been done in the past and are now prepared to exert maximum effort to serve this group of students better.

Another group of recommendations pertained to the reading program, both present and future. Some experimental work was suggested and information is now being collected to determine specific directions. Next year the reading program will be expanded with a follow-up tutorial technique to the normal reading courses.

Expansion of the occupational curricula was strongly urged, along with a different academic-dismissal policy and the addition of certificate programs. All of these changes were motivated by a desire to serve a greater range of students more adequately. These concepts have been accepted and are being implemented. The commitment to a wider range of occupational curricula is reflected by the creation of a new position, Associate Dean for Occupational Programs.

An expansion of community services was also recommended by the project team. Here again the new administrative organization provides for this expansion with a major division of the college being created to be responsible for community services. Noncredit offerings have been increased substantially, particularly in the area of women's programs. Channels of communication with government agencies and local boards of education have been opened and joint planning is now underway.

Instruction is another area that is showing the effects of the project. Multi-media classrooms are being included in the classroom wing now under construction. The use of television is increasing, not because instructors are being pressured to use it but because they wish to do so. Auto-tutorial techniques are being explored extensively by the Nursing Division, and more modestly by other academic divisions. Faculty working with low-ability students have been given greater support and encouragement because of the concern expressed for this group by the project team.

CONCLUSION

I would like to conclude with what I think is the most important outcome of all—an atmosphere for change. Such atmosphere depends not on a desire to change for the sake of change, not on a glowing account that one has read but has not had the opportunity to observe or discuss with the people involved; it is an atmosphere which has been created because a large segment of the faculty and staff have an awareness of what is happening around the nation and a desire to be part of a dynamic movement.

Awareness is one contributing factor to this atmosphere for change; a second important one is the feeling of mutual responsibility and respect on the part of the administrators and teaching faculty that was significantly strengthened by the project. I think that this feeling was aptly conveyed in the conclusion of the accreditation self-study section on faculty morale which was written by a committee of teaching faculty:

The committee responsible for writing this section is of the opinion that faculty morale at Delta is high. Several problems have been identified throughout this section but problems of themselves do not detract from morale as long as the persons recognizing the problems sincerely believe that they will be solved. The committee members believe that the teaching faculty at Delta is aware of its responsibility to pursue solutions and, equally important, are confident that the administration and Board of Trustees will be receptive to plausible solutions. It is this atmosphere of mutual responsibility and respect that supports an optimistic outlook for the future of Delta College.

One of the administrators who worked with the team in a staff capacity made somewhat the same point when he said, "Prior to the summer project, I was never quite sure just how successfully administrators and teaching faculty could work as a team. My experience with the project proved to me that it is not only possible but highly desirable." Incidentally, this same man has just assumed the duties of president of an Illinois community college, and I am sure that the institution to which he has gone will be feeling the effects of the summer project almost as much as Delta College has.

FRANKLIN G. BOUWSMA

AN INNOVATIONS CENTER

Innovation in education is a comparative thing. A project which is innovative on one campus is not new or startling on another. The design of a system for change must be oriented toward the individual. It is possible to stimulate innovation, and the design for tomorrow is here if we can be made aware of it.

The aspects of the learning situation are the occasion, the content, the student, and the professor. Although all of these must be considered in the design for change, the most important is the professor. He designs the content and meets the student in various-size groupings with different content confrontations on different occasions. The ethos of the professor, his character, intelligence, and good will is the focal point of the learning program of the college and is the major stimulus for the student.

The professor will lead in innovation on campus if he has an awareness of what is going on elsewhere, and if he can work with varied and readily available instructional equipment and materials. As an aid to the professor at Miami-Dade we have established the Innovations Center, an area designed for "hands-on" study of projects and programs. Located at the middle of the Learning Resource Center, where special projects are all around, the Innovations Center is not a depository but a catalyst, a complete service station for ideas.

Included in the Center are examples of:

1. Varied audio-visual equipment which are operational and available at the college.
2. Equipment which has been purchased on a "sample basis" to pique the curiosity of or arouse the interest of faculty members.
3. Equipment on loan from manufacturers for consideration by the staff.

Also found in the Center are lists of equipment and instructional materials (such as films, tapes, slides, programmed materials) which the college owns or can secure. Books, monographs, pamphlets, and magazine articles which describe instructional experiments and innovations are assembled, catalogued, and available for use. Frequently changing displays of instructional materials and equipment—so arranged as to encourage faculty browsing—are used, and reports on new facilities which are available at the college or which can be procured are regularly distributed to the faculty. The Center is staffed with a Director—who is a psychologist—and a secretary.

If the Innovations Center is to function properly, it must be—and is—located in an area in which there is much faculty traffic. If the faculty does not come to the area, displays and material will be largely a well-intentioned depository. The atmos-

phere of the Center is warm and congenial. There is a quiet environment for reading and a comfortable lounge area for discussions and arguments. The Center is located near the audio-visual check-out counter—right in the midst of a concentration of learning resources.

The Innovations Center does much more than provide instructional facilities. It helps faculty members to (a) plan changes in instruction, (b) implement such changes, and (c) evaluate them.

Planning for change involves formulation of observably definable objectives, specifying where the student is in terms of these objectives, and outlining the procedures and media to be used in moving the student from where he is when he starts a course toward the objectives set for the course. Implementing a plan includes helping the instructor carry out his proposal, providing him with any needed multimedia instructional facilities, and aiding him in using them. Evaluation requires the design of an experiment to test learning outcomes—based on objectives.

The Center became fully operational in January 1967. Within four months, 40 per cent of the faculty has used the Center in one way or another; six research reports have been prepared; and countless instructional innovations are being tried. The progress of the Center is gratifying. Its success is the result of a faculty not afraid to get involved in change, not afraid to look at themselves objectively, and not afraid to show they are dedicated to the science of learning.

Of the four aspects of learning, the most important in terms of innovation is the professor, and the best way to influence him is with a "continuing awareness" project, an Innovations Center.

R. WILLIAM GRAHAM

BUDGETING FOR INNOVATION

It has been emphasized in educational literature that before an innovation can be implemented, a great deal of planning must be done. Unfortunately, many faculty members who are stimulated to attempt new teaching methods become discouraged when they realize the effort which must go into the planning. An administrator may suggest and perhaps even convince his staff that a program learning laboratory should be established at the college, but if the project is to be successful, adequate time must be made available for planning and developing it. At the Junior College District of St. Louis, key faculty personnel are employed during the summer or released from portions of their teaching loads to work on innovative projects. At our last board meeting, expenditures amounting to \$66,000 were approved to support seventy-five summer projects. Some of these projects were:

1. *Business Education*: The development of four video tapes to provide demonstrations of effective sales procedures.
2. *Computer*: A study of the feasibility of scheduling by computer and the development of a chart of input data necessary for computerized scheduling.
3. *Engineering*: A statistical study on key factors underlying attractions and attrition in the engineering technologies for the purpose of improving enrollment procedures.
4. *Physics*: The development of a series of five computerized problems dealing with engineering physics to take advantage of the IBM 360 computer terminal.
5. *Speech*: A project to develop techniques by which a video tape recorder can be used both in the development of oral communications skills and in student evaluation of performance.
6. *Communications*: The preparation of materials for a communications laboratory where students practice writing in programmed business and academic situations.
7. *Student Characteristics—General Curriculum*: A comparison of the academic characteristics before, after one semester, and after one year in the General Curriculum.

When the General Curriculum program for the educationally disadvantaged was first conceived at the Forest Park campus, ten teachers were employed during the summer to begin the development of materials for use in the project. But not only new programs need to be approached in this manner. Last summer the entire nursing faculty were given stipends to revise the associate degree nursing curriculum and individual faculty members have been given time during the year to work on courses using audio-tutorial methods.

The following procedures govern the administration of the special projects:

1. Up to 2 per cent of the professional salary budget on each campus is allocated to research and development projects in the areas of instruction, administration, and student personnel services based upon the ability of the campus to justify such allocations.
2. Plans for evaluation must be included in each project proposal.
3. Each campus is charged with the responsibility for:
 - a. Initiating and developing proposals;
 - b. Providing a review and approval procedure on each campus;
 - c. Circulating descriptions of approved projects to other campuses for information and to avoid duplication.
4. The campus director is responsible for approving projects on his campus.
5. Proposals of extreme district-wide importance are referred to the President's Council, which will in turn solicit the cooperation of one or more campuses in conducting the project.
6. Completed reports on the projects for each campus are duplicated and bound annually. Copies are placed in each campus library and in the district administrative office.

Usually projects are budgeted during the spring semester, when faculty members suggest and justify projects on which they would like to work. The projects are then included in the succeeding year's budget.

It is important, however, that the budget have flexibility. Creative ideas are often unanticipated. For example, an instructor preparing a basic communication course for a specified amount of extra remuneration may, in the middle of the project, feel the need to prepare extensive visual materials for the new course. It is important to increase the stipend so that this work can be done when the urge is present rather than postpone the undertaking until the next fiscal year. Further, the creation of ideas is not limited to the budget-making time during the spring of the year. It is imperative that money be available to support unbudgeted projects that may develop during the course of a school year. In addition, proposals may be made for district-wide projects—which should not be charged to an individual campus. Accordingly, a district planning budget of \$100,000 is provided, only a portion of which is budgeted for the coming year. The remainder is kept on hand for projects which may require support after the fiscal year has begun.

It is my impression that the weakest aspect in the various innovative programs which are now emerging throughout the country is the lack of scientific evaluation of the outcomes. Too often, research is devoted to the study of students' characteristics rather than to the evaluation of the learning of these same students. "No business can survive without knowing what it produces, but most educational institutions have only a scattered and vague knowledge of the kind of product which emerges from them."¹

We at St. Louis are concerned with "our product." Plans for evaluation are, therefore, included in the application for and in the development of each innovative project.

¹ Frank B. Dilley "Programmed Budgeting in the University Setting," *The Educational Record*, XLV (Fall 1966), 475.

A VICE-PRESIDENT IN CHARGE OF HERESY

If you can't afford to send your faculty on a \$75,000 innovations junket, and if you can't afford an Innovations Center, you can still afford an innovator. Somewhere on the campus there is a faculty member who, if relieved of his present responsibilities and turned loose, would do much to advance the cause of experimentation and innovation. It worked at Kendall College.

In the October 1965 issue of the *Junior College Journal*, B. Lamar Johnson, speaking of the need for experimental junior colleges, suggested that the need be met by appointing "vice-presidents in charge of heresy." As Dr. Johnson explained:

This proposal would provide a staff member—with no administrative responsibility—whose duty it would be to keep abreast of national developments and to initiate plans for exploiting them at his own institution, as well as to develop completely new plans for local use and application. Our vice-president would be a "dreamer." He would attend conferences and assemble "far out" proposals. He would needle administrators and his faculty colleagues and, in turn, be needled by them. He would study the findings of research and analyze their implications for his college. He would, in short, be a harbinger and instigator of change.²

The appearance of Dr. Johnson's article coincided with the visit to our campus of Roger Garrison, who urged me to take the "vice-president in charge of heresy" idea seriously. In a burst of enthusiasm I outlined a two-and-a-half page job description for such a position at Kendall College, and submitted it to the dean along with an application for the job. My administration was highly receptive to the proposal, partly because our accreditation team had recommended that we capitalize on our status as a small, private junior college and use our freedom to experiment.

My career as "harbinger and instigator of change" was duly launched, with only one significant departure from Dr. Johnson's specifications. I was appointed to *remain a faculty member* rather than become a staff member. I was given only one clear mandate: Encourage the emergence from within the faculty of what Northwestern University psychologist Donald Campbell has called "the spirit of continuing, contagious institutional experimentation." The decision that I retain faculty status, coupled with this mandate, reflected our desire to employ an evolutionary approach to change, carefully avoiding the imposition of innovations for which the faculty was unwilling or unprepared.

With this evolutionary mandate and Dr. Johnson's job description as my point of departure, I was free to define my role further as I saw fit. My teaching load was re-

² B. Lamar Johnson, "Needed: Experimental Junior Colleges," *Junior College Journal*, Oct. 1965, p. 20.

duced (I created an experimental course which has served as a focus for my "heresies"), thereby allowing sufficient time for dreaming, attending, needling, studying, and—what has proven most challenging of all—developing practical applications of the insights of Marshall McLuhan.

I suppose it is inevitable these days that a licensed heretic would turn to Marshall McLuhan. Marshall McLuhan is attempting to come to grips with what is going on. Almost everybody else is still taken up with what is staying behind. I was rudely introduced to this problem when I attended the annual convention of the Division of Audio-Visual Instruction of the National Education Association and discovered that less than half of the presentations I heard utilized audio-visual materials. I encountered the problem again at a conference devoted to new techniques of instruction, which was presented almost entirely via the lecture method.

Our tendency to treat new forms in terms of old forms leads to more serious anachronisms than these, however. We confuse our purposes much more when we fail to distinguish between a true innovation and a new procedure which is only a more efficient way of implementing an instructional form that is being outmoded. For instance, the audio-tutorial method of instruction, developed by Samuel Postlethwait, is perhaps the most brilliant application in education of a fact that Gestalt psychologists have been telling us for years, but which took a Marshall McLuhan to call to our attention, namely, that the *total* environment communicates to us much more effectively than a single stimulus therein. The programmed textbook represents the single stimulus. The single stimulus is very effective with Skinner's pigeons, because in the Skinner box the single stimulus is the total environment. But it is impossible to isolate our students like Skinner's pigeons, and hence the value of Postlethwait's method of surrounding the student with multiple stimuli, approximating a total instructional environment. The programmed textbook has a future, but its future is limited, because the textbook is the logical conclusion of the single-stimulus form of communication which our electrified, urban environment has made less effective. Samuel Postlethwait's procedure, on the other hand, is riding the wave of the future, because its form is well adapted to students who have been conditioned to a fast-paced multiple-stimulus environment.

Marshall McLuhan has drawn much-needed attention to the relationship between form and content. "The medium is the message," he tells us. Translation: The form of instruction conditions behavior more than the content. It is agreed that a major goal of education is the changing of behavior, and thus McLuhan's insight is extremely valuable to educators. Problem: How do you communicate the importance of form to faculty who think of achieving educational objectives only in terms of content? In practical terms, how do you explain that Samuel Postlethwait's form of presenting botany communicates something different (not just more, but *different*) than a programmed textbook covering the same subject matter? Even more important, how do you *demonstrate* the difference, since it tends to be of an affective rather than a cognitive nature? Cognitive testing is much further developed than affective testing, the latter having been neglected until recently. Perhaps the fact that we are now acutely aware of the need to test changes in the state of the student as well as changes in the state of his acquired knowledge is itself an indication of our awareness that the medium is the message.

I have been very much concerned with the application of McLuhan's insight, as well as the communication of this insight to my fellow faculty. The best way to accomplish the latter is to have McLuhan talk with your faculty for six or seven hours, which is just what we did. We knew that we had succeeded to some extent when, during a mid-afternoon coffee break, faculty members were overheard making comments like "I must be losing my mind—he's beginning to make sense!" We reinforced this exposure to McLuhan with a similar exposure to Buckminster Fuller, who discovered that the medium is the message decades ago, but instead of advertising it devoted his life to applying it in the development of technologies designed to improve the forms of human community and communication.

Ultimately, however, communication of McLuhan's insight is less important than its application, and the rest of my paper will be devoted to that.

In the light of my knowledge of the inherent conservatism of college faculty and my certitude that a vice-president in charge of heresy is without honor in his own country. I was initially very careful not to talk about innovation and experimentation. Instead, I worked via the medium. (Nobody, my reading of McLuhan assured me, is aware of changes in the medium.) I proceeded by indirection, encouraging the continuation of existing precedents for experimentation and establishing a variety of new precedents on an indirect basis. For instance, I warned my students *not* to tell other faculty about the heresies expounded or committed in my course, thereby assuring that they would and that receptive faculty members would join me in the spreading of precedents—though largely in the spirit of "if the administration lets him get away with such-and-such, I'm going to try so-and-so."

As an indication of why an experimental course of my own might lead other faculty to experiment in their courses, let me describe the format of my course for this fall, which I will team-teach with a new faculty member. (I try to team-teach with at least one different faculty member each semester, thus spreading another precedent.) The class will meet twice weekly in our Center for Curriculum Design, which is a carpeted double classroom without desks. It is equipped with folding chairs and tables to permit maximum flexibility in student grouping, and stocked with a wide variety of audio-visual devices, films, books, and duplicating equipment. Materials in the Center are at the disposal of the entire faculty as well as all students enrolled in classes held in the Center.

After two weeks or so of briefing and background lectures, our class will assume a multiple-small-group-discussion format. The students will have as their task the writing and editing of a two-hundred-page collection of manuscripts on the subject "Freedom and Order in a Technological Society." My colleague and I will assist small-group and individual study projects, contribute to discussion sessions, and serve generally as resource persons and critics. When a student begins to develop an idea, it will be printed via the Center's duplicating facilities and distributed to all other members of the class. Since no two students will be following the same reading program, every student will have ample resources with which to qualify and refine the thinking of his peers. The best materials emerging from the dialectic process will be submitted to a major publishing firm.

This, I submit, is fostering innovation via the medium. Kendall College won't be the same at the conclusion of this course, not because the faculty has been persuaded

of the virtues of examining traditional methods but because they will have been exposed to an exciting precedent for such examination, one which is difficult to overlook. In short, we create a medium which communicates an innovative ethos, and the faculty gets the message.

Occasionally I have taken direct initiative with the faculty, but always on an invitational basis. Most of this direct initiative involves the use of audio-visual equipment, i.e., a medium such as the Mercury cassette recorder. Kendall is one of several institutions in which the English department has experimented successfully with the oral grading of themes. Other schools have used dictating equipment or reel-to-reel recorders, but we chose the Mercury machine because of its portability, excellent fidelity, foolproof operation—and also because the distributor of this machine offers it more cheaply to educational institutions than his competitors do.

Subsequent to the English experiment, I urged the College to purchase forty of these recorders and announce their availability to any faculty member who desired to experiment with instructional applications thereof. Applications proposed or implemented to date involve three language teachers who have taken their recorders abroad this summer to record conversational German, French, and Spanish on location, for later use in class; an art teacher who will tape tours of Chicago's Art Institute and distribute copies to her students to be used at the appropriate point in her course; and a humanities teacher who permits students in two's and three's to tape serious discussions of specified aspects of her course, which, if satisfactory, exempt them from a written final examination. This latter option is a boon to students whose oral performance is superior to their prose capabilities. In the fall, our cassette recorder program will be extended by the purchase of twenty-five more machines, to be offered to students for experimental purposes.

Again, faculty are highly receptive to the opportunity to experiment under voluntary circumstances such as this. We don't suggest that the faculty's present methods of instruction are inadequate or insufficient (we aren't certain that they are, only that they might be). We just offer them a recorder, which provides its own power of suggestion. The *medium* is the message.

Probably the most far-reaching experiment, in terms of its effects on instruction elsewhere in the College, is taking place in our English department. Our English faculty have voted to dispense with a common syllabus and traditional theme assignments. A variety of nondirective, nongraded approaches are being attempted, in which students spontaneously submit papers on subjects of their own choosing, which may or may not relate to the subject matter chosen by their particular instructor for its high interest value. Oddly enough, some formerly D-level English students are writing B-level compositions under this nonthreatening procedure. We have a theory to explain it (you guessed it: "the medium is the message").

It is quite clear to some of us that the entire structure of English language education in the United States is organized to prove to students that they are incompetent. Understandably, many students accept the verdict and write accordingly. Our English people are creating a structure which tells the student that he is (or can be) competent with the language. Fortunately, some "incompetent" students respond to this verdict quite readily.

The broader implications of experimentation with Freshman English are worth

noting. Freshman English is the doorway to the curriculum, in more ways than one. *Every* student takes Freshman English. If every student is exposed to one year of challenging, involving, productive instructional procedures in Freshman English, he is going to have certain expectations about his other instruction. Once again, the faculty as a whole are provided with an invitation to examine older forms of instruction for possible shortcomings.

I should point out that the experimental ethos has spread beyond our instructional program, and can be witnessed elsewhere, as in our chaplaincy and counseling programs. A significant breakthrough has been made in the latter with the development of a new approach to group counseling. The executive director of the W. Clement Stone Foundation has trained the counseling staff and several faculty members in this new technique, which has produced dramatic results in motivating students previously characterized by apathy or low self-esteem. The technique, adapted from procedures used in business to motivate sales forces, represents a reversal of traditional group psychology procedures. Instead of focusing on the problems of individuals in the group, in the Human Development Seminars we focus on the strengths and success experiences of the group members. The majority of personnel in the college will be trained in this technique, to accomplish the double purpose of providing a highly motivated administration, faculty and clerical-secretarial staff, and also of providing a corps of seminar leaders adequate to provide seminars for the majority of the student body. These seminars, which provide one answer to the problems of counseling large masses of students, and which may be applicable at all levels of education are being extended this fall to UCLA and the University of Chicago.

What has been the overall result of the above experiments and numerous other innovative programs on our campus? Have they been merely tinkering or are they part of a meaningful revolution? My administration had hoped that such innovative efforts would spark a new self-study, not for the extrinsic purpose of satisfying an accrediting agency but for the intrinsic purpose of our faculty's becoming highly conscious of the goals and objectives of the College. If we may assume such a self-study to be a revolutionary venture, tinkering merged into revolution at Kendall last March when a two-day administration-faculty-student workshop was convened for the purpose of discussing the purpose of the college. Three questions were raised: (1) "What should happen to students as a result of attending Kendall College?" (2) "How should this happen?" and (3) "What is required to make this happen?"

This process of institutional definition is still underway, with each faculty member and administrator presenting his individual viewpoints to the faculty Committee on Curriculum and Instruction. The published proceedings of these interviews will be used in future workshops devoted to the development and statement of a common understanding of the College's goals and objectives. Then at least *we* will know what is meant by the glittering generalities on the first page of our catalog.

One thing was quite clear as of March's workshop. The faculty is committed to Kendall's becoming an experimental college, with one condition—that we maintain the unusual flexibility of instructional formats which has come to characterize the college. Our faculty is convinced that commitment to one, grand, overarching innovation lends itself to the danger of substituting a new rut for an old one. Such a

commitment can lead to the creation of an institutional form the message of which is every bit as inflexible as the older lock-step form being replaced. Therefore, at Kendall we are committed to create for our faculty the largest possible number of instructional options, so that each instructor can present his course with whatever combination of media and methods suits his needs, abilities, and preferences—with perfect freedom to change the combination from year to year as the quest for refreshment, refinement, and renewal moves him.

A traditional innovator recently observed that such a commitment will generate nothing more than a perpetual Hawthorne effect, wherein the benefits of our innovations would be merely the unmeasurable effects of new experience and greater involvement. As I recall, nobody has ever doubted that the Hawthorne effect was a constructive phenomenon. Furthermore, psychologists are agreed that new experience and involvement are generally desirable to the human organism. We are therefore prepared at Kendall to systematically capitalize on the Hawthorne effect in our experimental pursuits rather than to discount it. If that be heresy, we will make the most of it.

I will conclude by noting that I am a lonely man in my present role, and I look forward to the day when I can join the National Association of Vice-Presidents in Charge of Heresy. We have excellent workshop facilities at Kendall for the orientation and preservice training of such personnel. Accordingly, I hope all of you who are deans and presidents appoint vice-presidents in charge of heresy and have them write me for further inspiration—and perhaps for plans for a "National Association."

FREDERICK C. KINTZER

THE EVENING PROGRAM— AN OPPORTUNITY FOR INNOVATION AND EXPERIMENTATION

Junior college evening programs frequently have a degree of freedom—in scheduling, in teaching procedures, and in instructional materials—which make it possible for them to develop innovative plans with relative ease. Evening divisions may, indeed, have a special advantage in taking leadership in junior college innovational and experimental development.

In an effort to determine the extent to which these opportunities are being realized, I wrote to evening administrators of 240 junior colleges asking for information regarding innovative developments in their evening programs. Over two-thirds—69 per cent of the public and 50 per cent of the private colleges—answered my request. Thirty-six states were represented.

INNOVATIONS REQUIRING SPECIAL INSTALLATIONS

The language laboratory is by far the most popular installation housing the hardware of innovation. Eighty-five institutions reported that specialized facilities are utilized in foreign language instruction, speech, and other fields. The language laboratory provides an opportunity for the part-time adult student who is motivated by interest in foreign travel to develop conversational language skills.

Eleven colleges report the development of learning resources centers utilized by evening students. Notable among these is Los Angeles Valley College (California), which, in its new Educational Materials Center, averages 125 evening students per week. Future plans call for taping of complete courses to accommodate adults who frequently cannot attend all lectures.

Promoting a major interest in large-group instruction, Miami-Dade Junior College (Florida), offers twenty-six large-auditorium evening programs each week; other evening classes utilize special equipment approximately 155 times per week.

Thirty-two institutions indicate that television instruction is utilized to enliven and enrich evening college classes. Junior colleges in widely separated sections of the country submitted statements regarding instructional television for part-time students. Milwaukee Technical and Adults Schools operates two educational T.V. channels—presenting courses at night in economics, psychology, mathematics, and shorthand. San Bernardino Valley College (California), one of the few junior colleges to own an educational station, was the first offer fire science courses by T.V.

Our tapes have been used by fire departments and colleges over the state. The firemen view the lectures in the various stations during their duty hours.

Unlike other districts which make extensive use of television, San Bernardino requires evening division students to come to the campus several times during the semester for discussion groups and examinations.

Particular mention must be made of imaginative uses of closed-circuit television at Orange County Community College (New York). Classroom cameras and a video-tape recorder in the television control room provide opportunities for advertising students to write, produce, and act out original "commercials." Somewhat similar to the Bronx Community College nursing program reported by Johnson,¹ Orange County Community College Nursing Department students view, by monitors in another building adjoining the hospital, a "live" operation or delivery. Thus, an entire freshman or sophomore class may see clearly and in great detail everything that happens in areas which they might, with luck, visit briefly once a semester.

Odd hours of watching—early morning or late evening—is one of the striking features of educational television. The feature along with after-hours job up-grading training being developed by the College of San Mateo—which has a college-operated television station—are areas where evening divisions may take leading responsibility.

About the same number of institutions acknowledge future plans as those indicating current use of video-tape installations in evening classes. Chabot College (California) is developing a plan of observation and improvement of evening instruction through video-tape equipment. Evening classes will either be held in a television studio or such equipment will be brought into classrooms. An instructor will be asked to postview his own performance and to evaluate himself.

INNOVATIONS IN ORGANIZATION AND PROCESS OF TEACHING

Many institutions participating in this survey indicated some use of programmed teaching materials in evening classes. Typically associated with hardware found in language laboratories, forums, or library instructional centers, such materials are most often developed for basic English and mathematics classes.

Some evening administrators are optimistic regarding the value of programmed materials. As one commented in his letter:

The day may come, it seems to me, when we can eliminate subfreshman English with wise use of programmed materials and teaching machines. The English Department, I dare say, does not fully agree with me.

Thirty-seven institutions mention some form of team-teaching. Similar to Monterey Peninsula College (California), Centralia College (Washington) has four to six levels of basic and high school adult classes in math-science and English-social-science materials in one room. Team-taught, this situation, in the words of the respondent, resembles "the one-room school I used to attend in Nebraska." Each group learns from the others, and instructors coordinate materials to benefit all sections.

¹ B. Lamar Johnson, *Islands of Innovation*, Junior College Leadership Program, Occasional Report No. 6 (Los Angeles: School of Education, University of California, 1964), p. 37.

Modesto Junior College (California) provides migrant-labor-camp workers with a basic education. Reported in a two-volume study, the instructional program brought to three different migrant labor camps by the College Adult Division includes communication skills using dialogues and dramatic plays, homemaking and consumer education, understanding customs and holidays, and health and child care.

Santa Monica City College (California) is matching experienced and inexperienced evening teachers in a team-teaching experiment.

Concerned that evening instructors need help and advice in the use of materials and equipment, Portland Community College (Oregon) is hiring one full-time person to work with evening personnel in instructional practices and materials. The instructional materials center is open evenings to provide access to production of needed programs.

Several institutions report rather extensive Work-Study programs—including Miami-Dade Junior College (Florida), which conducts at least four on-campus arrangements, and Chaffey College (California), which places interns or trainees in police agencies and correctional institutions. Monroe Community College (New York) offers an unusual work-study program in optical technology; Bausch and Lomb and Eastman Kodak are participants.

Examples of the use of special teaching techniques cited in this section are but a few of the stirrings in American community junior college evening programs. An expression offered by a California evening administrator suggests the potential value of extended-day classes for promoting innovation in classroom methods:

Invariably, we first try our educational experiments in the evening division. If the idea is sound and survives, it is likely to be presented in day classes. The part-time adult student is highly motivated. We figure that his interests will hold even if the technique turns out to be a little haywire.

Other reasons were offered to encourage the decision to innovate first in the evening college. Practitioners, it was suggested, who frequently teach semiprofessional classes in the evening know what is required on the job and are usually acquainted with latest machinery associated with the trade.

Evening courses, can, in addition, be designed to complement day offerings. At Meramec Community College, St. Louis, refresher courses for professional nurses are offered in the evening to complement the daytime associate-degree program. A dental-assisting curriculum is also being designed for employed dental assistants who lack previous formal preparation but who desire to qualify for state certification.

INNOVATIONS IN CALENDAR AND SCHEDULE

While not numerous, innovative practices supplied by participants in the survey dealt almost exclusively with calendar and clock adaptations based primarily on accommodating adult evening students.

Nine of the twelve administrators who commented on the effectiveness and desirability of one or two sessions per week favor one longer meeting.

Chabot College, in all divisions except the liberal arts, has shifted to three hour blocks of time. Similar scheduling is followed at Oakland Community College (Michigan), where, instead of the normal one hour in a general assembly session plus

three to six hours in a learning laboratory or small assembly session, a part-time adult may meet his commitment for a course in a three- or four-hour block in one evening per week. A Miami-Dade survey indicates that faculty and students prefer three-hour, one-night-a-week sessions.

To accommodate shift workers, Phoenix College is trying a back-to-back arrangement—a Tuesday night and Saturday morning scheduling—to enable police and firemen to switch sessions as their shifts change. Technical courses in optical technology and police science are offered on a swing shift basis at Monroe Community College. Students may attend either day or evening sections.

To accommodate rural-area students, Skagit Valley College (Washington) provides a traveling teacher who holds Friday evening classes at home in the San Juan Islands, remains overnight, and continues with Saturday morning sessions. Friday night and Saturday morning schedules are commonly mentioned—including Auburn Community College (New York), and American River Junior College (California), where over five-hundred attend Saturday classes.

Odd-hour classes are also identified: at Suffolk Community College (New York), beginning at 3:45 P.M. to permit late afternoon and evening full-time study, and dinner-hour sessions at East Los Angeles College, Santa Monica City College, San Diego Evening College, and Dutchess Community College.

Saturday classes are typically offered by community junior colleges, but a distinctive twist is given this commonplace scheduling on Miami-Dade's South Campus. Called "The Weekend College," Saturday classes have been prescheduled over a three-and-one-half year period to enable students to complete an associate degree entirely on Saturday. In addition to the three majors now available, any one of ten others may be completed by attending only one additional full term in the evening.

Odd-hour and weekend schedulings are permitted an increasing number of evening college students to graduate from junior college.

As an added inducement to part-time students, Morton Junior College (Illinois) has inaugurated a "five-year plan" to complete an associate-degree program. Students often speak of belonging to the "five-year plan." The schedule calls for attendance in one or two courses and summers in some of the eleven different programs over a five-year period.

Advanced placement is a vital program at Fenger Campus, the all-evening College system. One and possibly two local high schools are planning to permit selected seniors to spend their entire senior years taking college courses. A Fenger instructor, at the invitation of a high school principal, conducts class in the high school classroom. The purpose of this experience is to expose high school students to the demands of collegiate courses and the rigor and discipline of a college laboratory.

The nation's community junior colleges are beginning to give attention to innovation and experimentation in continuing education. Practices vary widely in degree of inventiveness—that which is innovative and novel to one is quite traditional to another. Most everybody is doing a little something, but few are doing much. The evening program can and is providing innovative leadership.

WILLIAM L. PERRY

THE PUBLISHER AS AN AGENT OF CHANGE

Since joining Science Research Associates a year ago, I have acquired four impressions which I want to describe.

1. Like the society our colleges reflect, we have a new coterie within business, government, and education which might be called professional innovators. The junior college itself is an innovation in higher education. Junior colleges have to be innovative because they are different from four-year colleges and universities. New instructional materials for the junior college are practically unavailable. At Corning we could find almost no instructional materials written by junior college students. Our students were not learning; our faculty began to carry around their own courses in briefcases; and a great dissatisfaction and anxiety existed about the inappropriateness of available materials of instruction. Particularly true was this feeling in course areas outside the liberal arts transfer program itself. The areas I mean are: the occupational-vocational, career-oriented curriculums, the remedial and developmental reading and writing courses, the English, social science, science, and mathematics courses for nontransfer students, the orientation and study skills area, and, perhaps most importantly, the testing, diagnosis, and achievement areas.

It is exactly in these areas that we at Science Research Associates are working with the greatest zeal and level of priority.

2. Another impression I have gained over the last year is that not all excellent teaching and learning takes place in the school and college. I have seen fantastic examples of teaching and learning in the industrial organization itself. IBM is the ninth-largest corporation in the world, with nearly 200,000 employees. It maintains a vast educational system involving fourteen education centers in the nation, enrolling last year some 355,000 course registrations, at a cost of over \$100,000,000 for the year—an educational budget larger than Columbia University's. IBM maintains educational research and development centers supporting this enterprise composed of specialists in every conceivable discipline, in all the media and communications areas imaginable. There is today much outstanding education going on in industry, and there are many similarities in this to what junior colleges do in their occupational-technical programs. As time goes on, it is likely that much of the industrial education and training now entirely within industry will be shifted to public education at the appropriate levels. Much of it is headed clearly in the path of the junior college.

3. My third impression has to do with publishing. For a long time educational publishing was not a change agent in facilitating learning; indeed, it was a conserving force that tended to do just the opposite—slow publishers behaved like service people behave; they served the field of education without comment on the field, let alone active participation in the development of innovative materials. Publishing used to be Victorian in outlook, humble servants, faithful in silence, hidebound by convention. They published what came in the door or over the transom, on bankers' hours. And so, naturally, the game was to get an author from the best college. There was snobbery in publishing because there was snobbery in higher education. It was unheard of to invest in innovative publishing ideas—or in the development of ideas into exciting formats.

Today, this traditional role of publishing has changed. Publishers are change agents; they are active rather than passive; and here and there they lead rather than follow. Snobbishness has largely gone. Considerable research and development have been supported.

4. I used to be a teacher. I still feel like one, although in the last year I have felt more like a student. The mysteries of publishing are great to behold.

AGENT OF CHANGE

Publishers become an agent of change when a teacher walks in the door and says, "I've got something new that we need." And, more particularly, we at Palo Alto get excited when a junior college teacher walks in the door and says, "I'm a junior college teacher and I've got something new that junior colleges need."

Here begins, perhaps, a kind of evaluation of innovation in instructional materials not generally thought about too much by educational professionals. What must the editorial investigator do? He must decide whether or not the teacher's plans, ideas, proposed projects seem to justify publication. He must make an evaluation of the proposal. And the evaluation is for keeps. The judgment will have to survive the marketplace and, if possible, create a return on investment both to the author and to the publisher. One proof of a good idea has to be whether others adopt the author's work and buy it. This is not an abstract standard, or a hazy objective. The test of the innovative educational product is whether it works, not whether it fulfills some Platonic idea about the philosophical notion of goodness. In just the same way, the ultimate test of a student's education should be based on what works for him—that is, fits him for a job or the pursuit of happiness or truth or both—and not that it bestows on him three credit hours in English, eight in algebra, or whatnot.

A junior college should view with some pride the emergence of a faculty member as an author. This provides some evidence that ideas developed at the college have been accepted as worthy of wide distribution to other colleges.

No publisher can begin to track fascinating experiments in teaching or innovative approaches at every college. Accordingly, conferences are important to us, too. This is why we approved the initial seminar on the Experimental Junior College.

I would be less than candid if I did not now turn to another widely publicized, if little understood, phenomenon in educational publishing. I have said that the publisher becomes an agent of change when a teacher walks in the door with a new idea. Well, someone else has also walked in the publisher's door. This someone is the elec-

tronics and communications corporation executive. There is taking place an enormous switch in ownership of publishing organizations. I refer to acquisitions made by Bell and Howell, Columbia Broadcasting System, General Electric, Litton, Raytheon, Radio Corporation of America, Xerox, International Telephone & Telegraph, Sylvania, Westinghouse, and International Business Machines.

Executives of these businesses have a considerable number of innovative ideas, too: ideas for educational improvement in instruction. And they are exceedingly knowledgeable. They have administered large industrial educational programs. And they have worked with schools and junior colleges and colleges for a long time and in increasingly close relationships. Their perceptions of education and its needs are just about as valid as ours; they are the main users of education's graduates; they know the score.

They are saying, "We know how to communicate with the public effectively; we know what training we'd like our employees to have; we have revolutionized government and industry—in such areas as transportation, data processing, law, and medicine. Aren't our technological advances applicable to education? Isn't learning basically communication? Can't faculty members be better used in partnership with technology? How is our society planning to deal with the expansion in higher education?"

I can conclude without reservation that this latest change in the lives of publishers is for the better. I am enthused about it. We will need this kind of capital, this kind of know-how, this kind of help to get a good job done.

We in publishing today are therefore becoming a kind of link—a catalyst—between the teacher and the electronic-communications specialists. This is a new role and not one of unimportance. The sky may be wide, blue, and vast, but the ground on which we stand is rugged terrain. While mountains are in sight, so are deep crevices.

Sometimes when I think about the new technology, I am reminded of two prophecies—one made in 1924 and one in 1926. In 1924, in reporting a new technical advance, the radio, Martin P. Rice asserted, "It is possible and probable that radio broadcasting will become a great free common school in the not to distant future."¹ Two years later, John Wallace echoed a forecast that radio "will place a school marm in every home and breed a race of mental marvels."²

There are, of course, differences between 1924 and 1967. And there are some prophecies being made today that won't come true either. But some will come true as others did in the 1920's—electricity in homes, automobiles for all, telephones, high school for all, free higher education, and many more.

We are at work now sorting promising innovative ideas in education. Yes, some will go down without a trace; but others will make it. Which innovations today will be standard practice tomorrow? That is the task for us to jointly commence.

¹ Martin P. Rice, "The Future of Radio Education," *Journal of the National Education Association*, XXIV, No. 3 (Mar. 1924), 82.

² John Wallace, "Sad News: Why Radio Can't Educate," *Radio Broadcast*, IX (Oct. 1926), 490.

SECTION III

On the Road

A TUTORIAL PLAN

How can a community junior college become innovative? It is a depressing fact that the problem of introducing innovations into the typical community junior college is truly monumental. A venerable institution as much as thirty years old will already have accumulated hoary traditions and faculty, both of which sturdily resist any kind of change.

The problem is considerably simpler in the case of a new institution such as Arapahoe. A paraphrase of a Johnson statement¹ was written into broad policy: "The College is therefore committed to leadership in innovation and experimentation within the role, functions, and organization of the comprehensive public community junior college."² On the strength of this mandate, the writer selected members of the first faculty, partly on the basis of their enthusiasm and promise for innovation.

The administration believes that nailing the innovative flag to the mast has resulted in these positive results: (1) creation of an essential innovative climate; (2) use of innovative techniques which have been, are being, and will be tested in the College's temporary quarters, and can, therefore, be built into the permanent campus facilities, anticipated within the next three years; and (3) a number of interesting innovations have been tried, including the tutorial program.

It was decided that the most promising innovation would be an instructional technique as old as civilization, yet which is new in the sense that it is virtually unknown in public junior colleges: *the tutorial technique*. In March 1966, this policy was established:

The College will emphasize a close relationship between teacher and student. The College recognizes that an irreplaceable constituent of effective education is the provision of opportunity for a fine teacher to help the student to define his educational goals, to expand his educational horizon, to inspire him to greater achievement than even he thought he was capable of. The College will therefore have a tutorial program, with every full-time matriculating student, as part of his normal course work, studying directly under a tutor, who is also his advisor, and who will meet with him both individually and in small groups.

Desirable as it unquestionably is to install the tutorial, the one-teacher-one-student relationship, it is not an easy technique to implement. The tutorial should be thought of as a *relationship* between teacher and student, placing them at either end of Mark Hopkins' fabled log. It is actually the oldest instructional method of all.

¹ B. Lamar Johnson, "A Need and a Proposal for the American Junior College," in B. Lamar Johnson, ed., *New Directions for Instruction in the Junior College*, 2, UCLA Junior College Leadership Program, Occasional Report No. 7 (Los Angeles: School of Education, University of California, 1964), p. 22.

² *Arapahoe Junior College—Major Policy Guidelines* (Littleton, Colo.: Arapahoe Junior College, Dec. 1965), p. 330.

It was the technique used by prehistoric parents to instruct their sons in the use of the flint spear and their daughters in the use of the cooking fire. Roman youths were tutored by cultured Greek slaves. Squires learned the noble arts at the stirrups of their knights.

However, as the centuries passed, the tutorial method of instruction became more and more rare. The class method was introduced; and more recently, the sheer weight of numbers to be taught, the logistical problems involved, and simple economics have led to the development of larger-group and mass instruction. The tutor has survived only in our most elite and well-financed institutions of higher learning.

Teacher and student have been moved further and further apart, and as the gap has increased, so has student discontent. Some believe that this discontent reached its climax in the violent eruption at Berkeley in 1964. Many thoughtful observers believe that at the very core of the unrest at the University of California was frustration felt by some of the nation's most brilliant students, who had come to a university staffed by some of the most brilliant scholars in the world—and found themselves completely isolated from them.

Small, or at least smaller, classes are often urged as a remedy for this problem. However, there is no magic in small classes as such. Various segments of learning—even within one subject—can best be attained in appropriate-size classes, depending upon various situations and needs.

Arapahoe Junior College intends that teacher and student shall have every opportunity to learn in appropriate situations. If there are some occasions when they are separated by a lectern, there will be others when they are grouped intimately together at the seminar table; and yet others when they will meet at a desk, in a one-to-one relationship.

The irreducible teacher-student ratio is, of course, the *tutorial*. An understanding of the tutorial program and its objectives will be simpler if Webster's definition of the word *tutor* is kept firmly in mind: "A person charged with the instruction and guidance of another."

OBJECTIVES OF THE TUTORIAL

It seems strange that in a country which prides itself on its recognition of the individual, there is little attention to the needs of the individual in higher education. Both student and teacher are prisoners of organized curricula.

If the teacher is to cover his material, he must stay close to the course outline. He must be watchful lest even the most stimulating class discussion becomes so irrelevant that it represents a loss of time essential to the completion of his mission. Moreover, even in the case of instructors who stress student participation, the classroom process must be, for the most part, one-way communication—the transfer of information from teacher to learner. In a lecture class even as small as thirty, the opportunities for students to interact must be strictly limited and are often monopolized by a minority of the class members, while the majority of students sit silent from one end of the quarter or semester to the other.

The student is similarly confined by the curriculum. The predetermined content of long-established courses represents building blocks with which the student must construct his educational program. Nobody consults him as to what goes into these

building blocks, and he has very few opportunities to pursue material which may be of special interest to him.

The tutorial at Arapahoe Junior College is an attempt to remedy the weaknesses in higher education described above. Its objectives may be summarized as follows:

1. Dialogue between student and tutor free from classroom pressure, with the latter being able to give his undivided attention to the former.
2. An opportunity for both to tailor a learning experience to meet the precise needs of the tutorial student.
3. Better understanding of the student's needs by the tutor and greater student confidence in the tutor, resulting in more effective advice to the student in the selection of his educational program and career choice.

There is a possibility that without some structure, the tutorial may result in nothing more than pleasant but directionless conversation. This might satisfy the first of the above objectives, but certainly not the second. A great deal must depend on the needs of the student, and the sensitivity and imagination of the tutor; however, here are some directions in which the student may move and has moved, with the guidance of his tutor, in seeking a positive, yet unique educational experience:

1. Exploring his major field of interest, or some aspect of it, in greater depth. An unusually mature student may be ready to undertake a simple research project.
2. Seeking a broad understanding of the nature of knowledge and its relationship to his major field.
3. Participating in educational experiences outside the classroom and relating these to the formal study that goes with the courses in which he is enrolled. Pursuing independent study on his own initiative.
4. Furthering his ability as a student—reading, observing, thinking, questioning.
5. Creating a spirit of inquiry and the ability to speak his mind and exchange ideas in dialogue.

THE TUTORIAL PROGRAM IN ACTION

The initiation of the tutorial program in the College's first quarter, fall 1966, was a daring, perhaps foolhardy, step. Some students—needless to say, the brighter ones—revelled in the freedoms the tutorial program presented: freedom to talk to teachers and freedom to do something of their own choosing. Some of their projects were fascinating. Others projects consisted of basic, yet valuable, investigations of career fields, and others were the routine, term-paper sort of production. In too many cases, the result of the tutorial was so negative as to represent failure.

PROBLEMS

The tutorial program has run into a number of "bugs." The bewilderment of both faculty and students, when asked to leap into this academic unknown at the beginning of the institution's very first quarter, was overwhelming. There was a universal plea for rules and guidelines. But how could there be a map? Maps are drawn by explorers who went there first.

In the second quarter, Arapahoe profited from the initial map-drawing by organizing an orientation class in which new students were briefed concerning the tutorial and other academic matters. This ran halfway through the quarter, at which time

the student met his tutor, and had the balance of the quarter to select his project and start it. This solved some problems.

With top students, the tutor is in some cases almost dispensable. However, tutors predictably found that motivating low achievers was a challenge which only the more imaginative teachers could meet. To many low-achieving or average students, the chance to do something they could choose to do was threatening rather than stimulating. Sadly, they, and in some cases their tutors, sought escape in an assignment "suggested" by the latter. A few students "turned off" when they learned that the meager amount of credit attached to the tutorial was not expected to be transferable, and one or two dourly determined deliberately to take an "F" rather than go along with college policy which makes the tutorial required.

Far too many students followed the very human tendency when one is faced with the new, the strange, the unknown: they did nothing. Despite notices, entreaties, and threats, they did not contact their tutors until it was too late in the quarter to begin, let alone complete, a project. As a result, the records of the college became peppered with 'incompletes.'

Some instructors complained that there was far too little time to devote to the tutorial. The faculty load of orthodox classes is held to twelve credits, the balance being represented by the faculty member working with not more than twenty tutorial students. He is expected to spend with them in aggregate about as much time as he would in a three-credit course. At his discretion, the tutor arranges individual meetings with students and meetings with small groups, utilizing his own and his student's time to best advantage. Of course, this time is not enough. However, it is felt that the dedication and ingenuity of the faculty would enable them to work out a reasonable compromise.

The tutorial program is both a headache and a joy to the library staff. The limitless horizon of the tutorial project means that students often need materials which are outside the normal scope of an established junior college library, let alone a growing, new one. On the other hand, the demands on the library by tutorial students are a wonderful index of students' interests lying immediately beyond those represented by normal curricular needs and, thus, valuable clues as to where to make acquisitions. The tutorial also causes students to become involved with the library in a way which is extremely heartwarming, if time consuming. Consultation with the librarians regarding resource materials relative to a possible project often developed into an informal class.

PROPOSED SOLUTIONS

Arapahoe is not satisfied with the tutorial program as it has been developed so far. However, the problems are mechanical rather than philosophical and, thus, capable of solution. The objective is to make this program as successful with as many mediocre or poor students as it was with the more able. To this end, Arapahoe is directing the following changes:

1. The focus will be more on the *tutor* and less on the *tutorial project*. The tutor will be given more flexibility and encouraged to bring the tutorial student along at the latter's own pace and according to his own capacity.

2. Students who have nothing to talk about will be provided with stimulating material which they can discuss with their tutors and in small groups. This will be attempted in a series of weekly or bi-weekly general education lectures for all freshman students. These will be based on a series of topics chosen for their interest to most young people, the objective being, first, to discuss the topic; second, to place the student in the center of the topic; and third, to relate the topic to the courses in the college curriculum.
3. The obligation on the tutorial student to produce a gradable piece of work each and every quarter will be relaxed. The tutorial requirement may be met throughout the first year by a quarterly grade of "satisfactory"—on the basis of the student meeting and talking with his tutor and attending the weekly general education lectures.
4. As he is ready, possibly during the first year but certainly by the second, the student will explore—independently and according to his own particular flare—aspects which will deepen and broaden his knowledge, experience, and understanding of those human activities which most strongly capture his attention. As often as possible, the result should be a project for which the tutor can give a grade to form part of the student's regular academic load rather than be an addition to it. The overall objective is to develop in as many students as possible the capacity to carry on independent study.

SUMMARY

Arapahoe's tutorial program is a sincere experimental attempt to restore the personal relationship in teaching and to emphasize the capacity of a fine teacher, thus given the opportunity, to help a student to define his goals, to expand his educational horizon, and to inspire him to his greatest level of achievement.

The tutor, as opposed to the harried classroom teacher, has a real chance to help a student achieve these results, first, through an empathetic relationship with his tutorial student and, second, by marshaling for his student the entire resources of the college and community—that is, the tutor himself, the faculty, the students, the library, the total educational program with all its teaching and learning resources human and mechanical, the community and its specialists, and life itself.

Arapahoe hopes sincerely that others will join in this effort to put Mark Hopkins' log back into the junior college schoolhouse.

ALBERT A. CANFIELD

TWO YEARS ON THE ROAD

In early 1965, Oakland Community College undertook an instructional innovation based on a number of assumptions. Some of the assumptions were identified and verbalized, some were not. Verbalized assumptions that one proposes to test are called hypotheses. Now—two years down the road—we can comment on the apparent validity of some of our hypotheses and suggest others which currently sustain us.

This report will be restricted, largely, to instructional assumptions. Neither time nor finances have really permitted a comprehensive, objective assessment of the propositions which sustain Oakland Community College; this will take years, perhaps decades, of continuing assessment and reassessment.

The experimental validation of the major aspects of the Oakland Community College approach has been dependent upon outside funding, which, incidentally, we have been unable to secure. Much of the data relating to our assessment has come from low-power evaluative techniques, such as grade distributions, small-sample interview studies, student-attitude questionnaires, faculty-reaction questionnaires, and a variety of short-term, small-sample research studies.

The assessment of Oakland Community College student performance in comparison with other college students has been limited, similarly, by time and staff and also by the difficulty of finding other colleges with similar students, similar courses, similar course objectives, and similar evaluative procedures. Too, quite frankly, we have felt a reluctance to compare our only partially developed courses with established ones at other institutions. We believe that the premature evaluation of our only partially implemented approach could impair the course of innovation, not only at our institution, but in education in general. However, neither of the limitations mentioned (time or money) can be permitted to interfere with the assessment of our program. We are committed to the validation of our ideas.

In October 1964 we agreed that something other than the lecture would be the instructional approach of our college. We assumed we could get better learning without a substantial increase in per student credit-hour instructional cost. To formalize that assumption, you might say, we hypothesized that a different instructional model would produce learning at least equal to, if not better than, the conventional lecture/textbook approach at the same or lower cost. This double condition or criteria (learning and cost) produced a difficult but reasonable objective.

The statement of these hypotheses, however, assumes that data on costs and learning can be obtained which are reliable and valid. Although, we collect cost data

in what we consider a reasonable and obvious manner, we have discovered that in Michigan no standard chart of accounts has been used. The items included as costs for instruction, like the people counted as "faculty," vary from college to college. Our start-up costs for equipment, materials, and supplies would be expensive charges and any effort to pro-rate them would be risky.

Our data suggests, however, that both our first- and second-year F.T.E. student costs are above the average in Michigan. Our investment in vocational/technical program start-up has been extensive and this, too, makes comparisons tenuous. To date, we have no valid data—certainly not to confirm our hypothesis that the approach is equally or less expensive. As long as colleges are to be administered, we must be concerned with the costs of instruction. Cost, however, must be considered in view of the data on learning. Where accurate data on costs are difficult, comparative data on student learning is virtually unknown.

The historic determination of who learns and who does not has depended upon a grading system of questionable logic and frequently unreliable application. Oakland Community College began with relatively specific objectives for the learner. In terms of my now obsolete graduate education, these objectives would have been called immediate, intermediate, and ultimate.

Immediate objectives concern results from short units of study, such as intermediate to whole course and ultimate to postschool behaviors. We have considered many different possible ultimate criteria, including statements such as this: "He will not evidence sufficient deviant behavior to result in his retention in a corrective institution."

In our efforts to achieve these objectives, we made some assumptions about the instructional process imposed. These turn into hypotheses, findings, and modified assumptions. An interesting process of assessment and refinement occurs naturally when one adopts a systems approach emphasizing and utilizing feedback. We use feedback hopefully to improve the activities of the College. A more or less natural flow from assumption, to hypotheses, to research, to interpretations, to new assumptions and hypotheses, is a fairly normal flow in a research environment.

Let me give you an example of one assumption we made and what we found over the period of the last two years. If high school graduates are permitted voluntarily to attend the assemblies and learning laboratories, they will spend such time in those situations as to proceed at a normal or faster than normal rate. They do not so behave. By their own admission, a substantial portion of students cannot tear themselves away from activities normally considered less academic, such as playing cards, going on dates, and earning wages.

We modified our assumption to the working hypothesis: Students required to attend the learning laboratory some minimal number of hours per week (those hours to be agreed upon by the faculty and students) will outperform groups not so treated. A small-sample research study, using four equated groups, was designed, and we discovered that the students who were required to attend the learning laboratories not only performed better (zero failures) but had fewer drops from the course. Based on this sample, we decided that for the coming semester, among our campuses, we would conduct fairly comprehensive and well-controlled studies varying the attendance requirements in the learning laboratories. Specific research

hypotheses will be generated which will cover various variables, such as who will be assigned, how long, etc.—a solid design, varying one or two major variables will be necessary.

We thought that if we had a carefully designed program of study, 90 per cent of the students would succeed. We found about 25 per cent "F's" alone. This has led us to a reexamination of a number of things. These findings have helped us appreciate the fact that philosophy is one thing and implementation is something else.

The achievement of student learning is a very complex piece of business, and involves many attitudes in a variety of areas. For example, if the faculty at our college felt that 25 per cent of the students should fail, we could give the best instructional program in the world and there would still be a bottom 25 per cent. I have the feeling this has been the case with engineering students for years.

We hypothesize that frequent feedback enhances both the rate of learning and its retention. I also hold that utilizing varied auditory and visual media enhances the attractiveness of instructional material and, consequently, the duration of student study. We also feel that media which simplifies the basic relevant elements produces better learning than elaborate media which produces a lot of noise.

We believe, for example, that color film can be much less effective than a simple blackboard drawing. We hypothesize that the live human operating in the display mode is no more or less effective than the same performance on film, provided the relevant elements of instruction are present.

We hypothesize that learners differ not only in the rate at which they learn, but also in their styles or modes. We hypothesize that optimum learning occurs when the cognitive, effective, and psychomotor needs and talents of the learner are compatibly matched to the instructional procedures. These statements have not been reduced to testable "null" form, but we believe them and desperately need time and support to test them.

In a recent report to our Board of Trustees, we pointed out a number of things, and some comment on them may be helpful. In some cases, it seems that the faculty is convinced that the students do not learn unless the faculty talks to them. In another pilot study, the faculty was encouraged to talk to the students in one group (about thirty students), forbidden to talk to them in another, and the students were permitted to talk to the faculty as they wished in another. We concluded, from simple and uncomplicated statistical treatment, that there was no difference in student production or performance. We give this data right back to faculty members who then reinterpret and redesign subsequent studies.

Another type of study we have done involves follow-ups of our students. Oakland Community College students seem to be doing as well as students from other community colleges.

We have been criticized because students were not completing our courses. For example, we had twenty-two students enrolled in a drafting program, and only eight students graduated and that seemed to deserve a little study. Before the study, people had interpreted this for us. They said it reflected these kinds of things: ineffective instructional approach, wrong type and level of material, inadequate student counseling, poor facilities, and even poor student selection. When we investigated, we found that of the fourteen who did not graduate, eight took full-time

drafting jobs before they had completed the course, one entered Oakland Community College full-time, one entered another college full-time, one dropped for financial reasons, and one we cannot locate. The conclusion I draw is that the validation of instructional programs requires a great deal of study and a great deal of effort.

Our two years on the road have been characterized by strong convictions, high hopes, and considerable personal effort. They have included some very substantial disappointments, some great thrills, certainly more recognition than I feel we deserve, and frequent organizational procedural changes—including concepts of instructional centralization. I hope that if I get an opportunity, next time around, I can look back with more insight, more courage, and, most importantly, give you more meaningful data.

JOSEPH L. BISHOP

A MODIFIED PLAN OF AUDIO-TUTORIAL INSTRUCTION

My title indicates that we at Mt. San Jacinto College have changed the original plan of audio-tutorial instruction as conceived by Samuel Postlethwait at Purdue University. This is true only in an operational sense. In this book, *An Integrated Experience Approach to Learning*, Dr. Postlethwait makes the following statement:

Emphasis on student learning rather than on the mechanisms of teaching is the basis of the integrated experience approach. It involves the teacher identifying as clearly as possible those responses, attitudes, concepts, ideas, and manipulatory skills to be achieved by the student and then designing a multifaceted, multisensor approach which will enable the student to direct his own activity to attain these objectives.¹

We have not modified these principles. We have sought only to improve our method of applying them to the instructional program at Mt. San Jacinto College in the same manner as Dr. Postlethwait is continually modifying his method of application at Purdue University.

One of the first duties of an instructor at Mt. San Jacinto College is to write the objectives for a preselected course he will be teaching. These objectives are written in the terms of the student's behavior expected at the end of the course. To be meaningful, objectives must:

1. Describe what the learner will be doing at the end of the instructional period.
2. Describe the conditions under which the student will perform.
3. Present criteria of successful performance by the student.

As soon as the objectives have been specifically established, the instructor finds or makes the appropriate media to teach that particular concept. Among media used may be a single-concept film or a special magnetic-tape recording prepared by the instructor in conjunction with the workbook. The point is that the best available material that can be purchased or produced by the college for the development of that particular instructional objective will be used.

Because most of the commercially produced presentations normally do not match the specialized needs of the courses taught at Mt. San Jacinto College, most of the instructional materials are produced by the college staff. Production costs are kept to a minimum by innovation.

Students check out lessons in the same manner as they would borrow library books. The students may go to the instructional center and, in individual booths, or

¹ S. N. Postlethwait, *An Integrated Experience Approach to Learning* (Minneapolis: Burgess Publishing Company, 1964), p. 5.

carrels, go over these materials as many times as needed. The materials contain the same content, quality, and objectives for every student and the quality of the presented media remains constant; i.e., the mood and fatigue of the instructor does not change the quality of the presentation. This type of training gives the student individual responsibility for learning. He is better able to establish a pace suited to his own needs, and he is able to see his progress from unit to unit. There is always a qualified person available in the instructional center, should the student have a question. However, most of the work during this phase of the program is on an individual basis.

After the students have had the opportunity to absorb the materials in the instructional center, they are required to attend a small group discussion. The number of students assigned to this group depends upon the objectives; i.e., one subject might best be discussed by five students, while another might require approximately twenty to provide more group interaction.

This discussion is led by a qualified instructor. The discussion is developed with clear objectives in mind, stressing application and synthesis of the facts which the student learned in the instructional center. Such an approach also allows an opportunity for students to "teach one another."

The college schedules time for the instructor to meet with any student who wants or needs individual instruction. It must be stressed that these meetings are not just for the so-called "slow" student. Adequate time is given to the "average" and "fast" students to direct them in study and/or research for their particular interest.

The instructor also meets with all students enrolled in a subject in several large group sessions. The first such session is for the purpose of orientation to the subject matter and to the system methods, as well as for the purpose of motivation. Special lectures on up-to-the minute materials, 16-mm. motion picture films, and special guest lecturers are all employed in the large group session.

VALIDATION

Validation studies of the multi-media have been conducted. The following brief information is taken from an informal oral report to our faculty:

The typical high school student achievement, student pretest, posttest, difference is currently about 75-75; i.e., 75 per cent of the students in a class of thirty-five were achieving "C" grade, or a 75 per cent achievement. We usually think of standard instruction, a typical lecture-discussion course, as 75 per cent of the students achieving 75 per cent of the objectives . . . or 75-75.

My data, and I currently have a pretty exhaustive data bank on seven analyses, indicate that Mt. San Jacinto College is achieving about 85-80 on the average among your media courses, which is considerably above the standard in most other instructional strategies.

Some of the other findings summarize what has been noticed about the multi-media courses:

1. Students perceive their efforts as being more necessary and important under media.
2. Students perceive that they study harder for media courses than for the rest of their programs.
3. If you deprive people of practice on the media in the library you will cause a drop in their achievement of about 11 percent. We don't know *why* that is; we simply know that when we took a random sample of those students who had been taken off the

media for a period of five or six weeks, their achievement went down and a greater number of them dropped out during that period.

4. We find that if you deprive a student of both media and objectives it is doubly disadvantageous for these youngsters. Objectives are most necessary for the least-independent student.
5. We find that media courses get revised. The objectives get revised, the instructional strategy, or the programmed practice, or the media activity gets revised. The evaluation scheme gets revised oftener than in a normal course. Putting a course on multimedia guarantees that it is going to be "tinkered" with more than a course which is not put on media.

MODIFICATION OF THE MODIFIED PLAN

We came to the conclusion that different types of terminal behavioral objectives should be written for different types of courses, or perhaps for different types of units within a particular course. For example, a skill-building course might require the student to demonstrate a particular function such as typewriting thirty words in one minute with fewer than two errors. Such tasks require specific behavior, specific answers, with few alternatives being offered. Behavioral objectives which require single restrictive conditions and call for defined behavior with a minimum and maximum defined or set standard are similar in nature to specific forms of media, which have been named by Marshall McLuhan as "hot" media. I think it very appropriate that these objectives also be distinguished as "hot" objectives. In like manner, those objectives which require a broadened class of conditions with other conditions being alluded to, calling for a class of behavior rather than a defined behavior, which in turn would allow for alternative behaviors with adequacy only minimally stated, can be called "cool" objectives. For example, an objective which calls for the student to compare and contrast the national government under the Articles of Confederation with the federal government under the Constitution of 1787, is a rather "cool" objective. Whereas an objective which calls for the student to spell correctly seven out of ten known words in three minutes without reference material, is a very "hot" objective.

I do not wish to imply that "hot" objectives are *bad* and "cool" objectives are *good*. I wish only to say that different objectives for different courses are very practically written in different ways, and that the method which is most appropriate for the particular unit objective of a particular course should be employed. I might also add that "hot" and "cool" objectives can be mixed in a single course, if carefully done. In one English course at our institution the course objectives begin as "hot" and continually "cool down," until at the end of the semester we have a very "cool" terminal objective. We also test in the same manner.

For example, in the area of evaluation, we found that, in some cases, we had written "cool" behavioral objectives and tested for achievement in a "hot" manner. Such a procedure tends to confuse a student as to the real identity of the unit objectives. If one states one objective and tests for something else, the student is left guessing as to the importance of each. We learned that we should always evaluate "hot" objectives in a "hot" manner, employing such methods as the true-or-false examination, single-word answers, whereas "cool" objectives are best tested by essay examinations or similar methods.

It is important to know that behavioral objectives should be written in complete agreement with what I have called the "intent of the course"—which brings me to my next point. We discovered that some of our units were not as interesting to the students as we would have liked. We had written the behavioral objectives for a particular course, and we had produced specialized media to assist the students to achieve the objectives. Figuratively speaking, the table was beautifully set but the food was not very palatable.

In analyzing the problem, we found that we had forgotten to include in the system a very important element, that element which I have called "intent." If the intent is not clearly stated, there is a strong tendency for the instructor just to disseminate the facts. The intent gives direction for the alignment of the facts. It provides the message arm upon which the facts can be hung, demonstrating their relationship. For example, the unit objective for a United States History course might be to introduce the student to the economic and political systems espoused by Hamilton and Jefferson, while the "statement of intent" might be to encourage the students to analyze historical data critically. Focusing sharply on the statement of intent, the instructor is able to align the facts in such a manner as to continually force the students to think critically about historical data. Our field testing has also indicated that such an approach increases the interest in the program.

It is very important to "tie" the objectives, the media, and the evaluation together as tightly as possible. If a student receives an explicated statement of objectives, studies media which have been carefully designed to reflect the objectives, and then is tested on the same objectives, he is certainly more likely to achieve that objective.

In conclusion, if I were planning to use the audio-tutorial method of instruction I would:

1. Clearly define my "statement of intent," the *raison d'être* for that course.
2. Write the student behavioral objectives carefully, distinguishing each objective as to its degree of "coolness" or "hotness."
3. Produce or purchase the best medium for each objective.
4. Design the structure of the course to complement the objective.
5. Tie the objective, the medium, and the evaluation as closely together as possible.
6. Evaluate the program carefully so that future modifications might lead to improvement of instruction.

EVELYN M. CHRISTENSEN

I EARNED MY A.A. DEGREE AT CHICAGO CITY T.V. COLLEGE

One son was entering high school, the other was approaching seven months, when a small item in a local newspaper caught my eye almost eleven years ago. College courses for credit were going to be taught on television. How wonderful for someone who could manage the time. However, in my case, there was a teenage son with his sights on medical school, that six-months-old wonder, a husband accustomed to a moderately well-organized household, and I had passed my fortieth birthday. I kept thinking about that article, but, in all likelihood, I would not have gotten beyond the thinking stage if my older son had not come upon it and excitedly announced that this was my opportunity.

ACTION—REGISTRATION

The air of excitement pervading the band room of Wright Junior College, one of the locations for testing and registering for those first Chicago T.V. College courses, is something I'll never forget. How I had reached a decision to take all four courses, I'll never know. The registrar advised against taking more than two courses. However, by that time I was beyond rationale.

As I juggled my handbag, registration fee, and completed forms for the four courses, a hand reached out for the forms. That hand belonged to the registrar, who had so earnestly advised against overloading, but he made no comment. He smiled and checked me out. I picked up my four study guides and drove home in a state of euphoria from which I have never totally recovered.

PREPARATION—THE HOME CLASSROOM

My textbooks purchased and the study guides perused, I rearranged various household chores, adjusted baby's bath and play schedules to suit the television class schedules, and tried to ignore the mounting anxiety I had begun to experience about undertaking a formal education, albeit in a somewhat informal manner.

ADJUSTMENT—STUDENTS, TEACHERS, MEDIUM

Although I was totally unaware of it at the time, I was later to realize that most, if not all, of the T.V. instructors were as apprehensive about teaching through the T.V. medium as the students were of learning through it. Classes began. Biology 101 to me became Mr. Howe so earnestly lecturing, explaining, demonstrating, and vitalizing the scientific aspects of life that I felt he would one day come right through

the T.V. screen and into the home in his enthusiasm to reach his students. I found myself responding aloud to his rhetorical questions. The instructors in all four courses were fabulous.

SECURITY—THE STUDY GUIDE

When I realized that it was not blurred printing but blurred vision that was hampering my reading, all my time problems were not solved, but they were considerably lessened. The inanimate tool of teaching that looms large in the effectiveness of those T.V. classes is the *study guide*. With the study guide as a road map, the student could follow the instructor's directions with ease and security in the comfortable knowledge of the ultimate destination.

WRITING—RELIEF AND APPREHENSION

There were papers to write in all subjects other than biology, and there were wonderful moments of relief when they were finished and in the mail. The state of relief, however, was only temporary. As the return of the papers became imminent, apprehension set in. For the most part, the section instructors were very conscientious; papers were returned promptly, carefully read and marked.

AIDS—CONFERENCES AND CONTACTS

Section graders were available for telephone conferences, and although I never availed myself of this service, I know some students who did and found it profitable. Also, lists of students residing in the same general area were compiled and distributed by T.V. College to all T.V. students in the event that they wanted to compare notes or study together. I heard of many students who profited greatly from some of the resulting get-togethers. I tried the group study just once. I discovered that I study better alone.

The televised student panels in political science, moderated by the instructor, were interesting. I took part in one of these. It was a good experience. Also, it made me a T.V. celebrity in my own home, for a day.

EXAMINATIONS—EVIL OF EDUCATION

Of course, tests were given on campus. The first one I took began as a nightmare. As the blanks were distributed, any assurance I had felt at home abandoned me completely. I wondered what in the world I was doing among all those calmly self-assured individuals (they all seemed that way) taking college exams. I began to consider the whole venture a mistake. The friendly faces of the T.V. screen were replaced with those of the test administrators and the proctors. The test began, and I lost track of all else. When time was called, I looked around for the first time since hearing the order, "Begin." What I saw was reassuring. There were other not young women with hairdos as awry as mine, and some not young men with quietly knitted, perspiring brows.

OUTCOME—TIME AND REWARDS

I never did become a casual test taker, but in June 1958, one year and nine months after registering in T.V. College, I had earned an A.A. degree from Wright Junior

College. I had also earned enough confidence to continue my education. A year and a half later, in January 1960, I received a Bachelor in Education from Chicago Teachers College and immediately began a teaching career in the Chicago public schools. The Master of Arts that I earned at Northwestern University several years hence was received with gratitude, but not without remembrance that it was that A.A. degree, made possible by Chicago T.V. College, that had been the "Open Sesame" not only to education and a career in teaching, but to a fuller way of life.

EVALUATION

Now that more than ten years have elapsed since I began a college career via television, I feel that my evaluations are free of the halo effect. And I still do not hesitate to say that some of the most effective education I have ever received was delivered through a picture tube. Partly, I believe, the effectiveness of television classes is due to an express element of the medium. The student's concentration is directed to a target so specific that the focus becomes sharp and clear. Further, the instructors are well prepared and do not digress aimlessly. Tedious detours caused by students who go off on tangents merely to hear their own voices are eliminated. Assignments are specific and are, in almost all instances, printed in the study guide.

Of course, certain subject matter simply does not adapt to the medium, and it should not be squeezed into it. The difference in the numbers of students who can be reached in one class on T.V. as compared to the numbers of students who can be reached in one conventional classroom is the significant difference that I find full of possibilities. It staggers my imagination to contemplate what could be accomplished if open-circuit T.V. were employed to develop skills of communication on a national basis. Perhaps we could solve many problems other than those of language.

It has been proven that much subject matter can be efficiently handled via T.V., but there is more, the concomitants. Much more than subject matter was taught in the T.V. courses I took. Humanity, understanding, vitality, and sincerity were projected from the T.V. screen by alert, sensitive people who had devised a new system of communicating the delicate process of provoking thought, prodding perception, and developing insight on an open circuit.

FREDERICK L. WELLMAN

STATEWIDE FACULTY INVOLVEMENT IN INNOVATION

A new statewide system of comprehensive community colleges is being established in Virginia to expand the educational opportunities for high school graduates and adults. One governing board—the State Board for Community Colleges—is responsible for the administration and supervision of the instructional program. The master plan indicates that twenty-two community college regions, each with a local advisory board, will be needed to provide campuses within reasonable commuting distance of practically all of the citizens in Virginia. Some regions will have more than one campus.

The Virginia Community College System may be considered as one of the nations largest multi-campus programs. In multi-campus community college districts it is usually difficult to develop and coordinate an effective instructional program. With the campuses spread throughout the state, including some that are several hundred miles apart and frequently separated by formidable geographical barriers, it is easy to understand the need to develop an effective instructional program for the total system.

Nevertheless, it is the desire to provide a coordinated instructional program that will contain similarities on all campuses where necessary and yet will contain differences and flexibility where appropriate to meet local needs. Statewide citizens' curriculum advisory committees are being established for each of the major curriculums to provide the necessary articulation with business, government, industry, the professions, and the four-year colleges and universities. In addition, each community college is encouraged to develop local citizens' curriculum advisory committees in order to orient the program toward local needs.

CURRICULUM DEVELOPMENT LABORATORY

A Curriculum Development Laboratory is being established as a part of the State Department of Community Colleges to help in the development of the curriculum and instructional innovations.

The Curriculum Development Laboratory will contain a library with a collection of instructional materials from throughout the nation. The staff of the Laboratory will help the faculty to prepare and demonstrate various audio-visual instructional materials and to provide in-service training activities for instructors by use of workshops and special programs. It will be possible to develop course syllabi and study

guides, teaching outlines, laboratory manuals, and audio-visual teaching aids. An experimental classroom equipped with some of the latest instructional materials will be available for the demonstration of new equipment, materials, and techniques. An art department, a photography darkroom, and numerous duplicating and printing facilities will be available.

FACULTY CURRICULUM ADVISORY COMMITTEES

No instructional program can ever be effective without the cooperation and involvement of the faculty. It is practically impossible to develop a good instructional program without good teaching, and good teaching is not possible unless outstanding instructors are working in a good educational environment. Thus, it is the plan in Virginia to develop an elaborate system of faculty curriculum advisory committees.

A faculty advisory committee will be established for each of the major instructional programs, with representation from all of the colleges in the system that are involved with the particular program. There are three primary objectives established for these faculty curriculum advisory committees:

- 1) To involve the faculty in the development and evaluation of the instructional program on a statewide basis.
- 2) To provide the faculty with an opportunity to discuss the instructional programs in Virginia and in other states in order to improve communication among campuses and to provide an opportunity to exchange ideas on the latest developments in the field.
- 3) To develop recommendations for presentation to the deans of instruction and to the State Department of Community Colleges for instructional improvement on such topics as the following:
 - a) Curriculum revisions;
 - b) Course descriptions and outlines;
 - c) Admission requirements for the curriculum;
 - d) Course prerequisites;
 - e) Graduation requirements for the curriculum;
 - f) Instructional materials needed, including library books, textbooks, audio-visual materials, and instructional equipment;
 - g) New instructional methods;
 - h) Experimental projects;
 - i) Waiver of program requirements such as advanced credit, advanced placement, advanced standing, and work-experience evaluation;
 - j) Evaluation of instructional programs.

INVESTMENT IN FACULTY DEVELOPMENT

It is always possible that a state-controlled and state-financed system may foster standardization and stagnation in the development of instructional programs. On the other hand, by utilizing the financial and leadership resources existing within a large system, it is also possible to promote innovation and experimentation in a more effective manner than is possible in a smaller system. Accordingly, the Virginia Community College System is committed to providing numerous opportunities for the colleges to develop innovative and experimental projects. If industries are will-

ing to commit 5 per cent or more of their operating funds for research and experimentation, a large and rapidly growing educational system cannot afford to do much less.

Most of the faculty are employed on a year-round basis. When they are not teaching classes, the faculty will be encouraged to work on the development of new instructional materials and methods. Educational leave at half salary is provided for faculty enrolling in an approved program at a university. A faculty member will not have to wait seven years to receive sabbatical leave as in most systems. It is the plan in Virginia to provide educational leave to eligible participants after one year of full-time service. Changes are occurring too rapidly in our society today to delay the professional growth of the faculty.

The Virginia Community College System also tries to improve the effective utilization of the professional talents of the staff through the use of numerous semiprofessional and technical assistants. Many community colleges are preparing semiprofessional and technical workers for other professions. It is just as important to provide the semiprofessional and technical assistants for professional educators. In Virginia, funds are budgeted for instructional assistants at the rate of one assistant for each five full-time-equivalent faculty members. These instructional assistants may be used for clerical, laboratory, audio-visual, and other instructional duties designed to aid the faculty member in making better use of his time and professional talents.

CONCLUSION

The continuous investment in curriculum development and professional growth for faculty members is designed to help keep the instructional program in the Virginia Community College System as a dynamic and ever-changing process. It is too early to determine the results of these plans. This summer, many of the faculty are already at work developing their instructional materials, even though some of the colleges will not open until September. Other faculty members are returning to college at half-salary even though the system is only one year old. Many will be attending institutes and professional meetings with part of their expenses paid by the system. The faculty curriculum advisory committees will be holding meetings during the summer. Other persons will be visiting other colleges and industry to determine what new developments should be considered in the community college program. And these activities will continue during the year and, hopefully, on a continuous basis in the future. No educational system can afford to do otherwise to meet the needs of the students and of society.

SECTION IV

Dreams for the Future

CAROL L. ZION

ROTATING THE FACULTY IN AN EXPERIMENTAL JUNIOR COLLEGE

In extended, populous, urban areas, junior college districts tend to operate as multi-campus or multi-college systems. Assuming that the district administration of such a multi-college operation hopes to encourage experimental approaches to curriculum and instruction, the problem becomes *how much* experimentalism and *where* will this experimentation take place. Should one college of the system be set aside as The Experimental College or should experimentation be advanced at all the colleges of the system?

My thesis is that the decision is not one of either-or; if experimentalism has district support, that is, the backing of the central administration, it should be in evidence at every college of the system. While most efforts with new instructional methods or curriculum design can be carried out within an existing institutional framework, it is recognized that some forms of experimentation might not be able to adapt to or coexist with the routine college operation. An innovative approach in student programming might require a different administrative structure or a separate facility in which to function. Therefore, it is suggested that a multi-college complex, in addition to fostering a positive attitude toward innovation and instructional research at each local college, should contain an experimental college. The uniqueness of this experimental college would stem from its being a part of every other college in the system. Although it would have its own facility, it would not have its own faculty, and, by not having its own instructors, it would involve all the other colleges.

The following headings, although not necessarily in order of importance, are the pertinent points in such a plan.

LOCATION

An experimental college should be established on one of the campuses of the district. This college would not be attached in an administrative sense to the college whose campus it shares. It would merely occupy a portion of the campus, because it must be located somewhere and such sharing would avoid duplication of certain expensive facilities. The experimental college should be a district venture and represent all the colleges of the system.

STAFFING

Staff enthusiasm for new ideas is basic to maintaining an atmosphere receptive to experimental planning and evaluation. To ensure continued enthusiasm, stagnation

must be avoided. It is, therefore, suggested that the faculty of the experimental college be rotated every year, or, for greater flexibility, that each staff member's stay at the experimental college last until his particular study is completed. This would generally vary from one to two years—although a year would probably be the most typical period of residence. In each field where an experiment is in process, the staff would consist of one representative from each of the colleges of the system. If there are four colleges in operation, there would be four English teachers at the experimental college, and these four instructors would remain at the experimental college for the duration of their investigation.

In order to ensure some staff continuity, perhaps it would be better to initiate new programs for the experimental college at different times during the academic year. Some faculty might remain at the college from June to June and others might enter at the winter break.

ADMINISTRATION

To maintain freedom in this program, line and staff delineations should be kept to a minimum. This college should not have department heads or division chairmen. The entire administrative hierarchy should consist of two people—the dean or director of the experimental college and the assistant dean or director. These two people should be involved actively in the experimental process. Rather than a lot of supervisors and administrators, this college would need a lot of secretarial and clerical help.

The director of the experimental college would report to the district administration in accordance with the procedures set forth for the chief administrators of the other colleges. The director of the experimental college would be related to the heads of the other colleges not only as far as the total organizational structure is concerned but in a stronger sense, too (since he would be using their faculty). The results of experimentation would be disseminated to the chief administrator of each of the other colleges, who would then institute those procedures which suit the needs of his particular college.

RESEARCH

A third person on the administrative level who should be attached to this experimental college (at the same time serving all the other colleges) would be a research specialist whose job would be to aid in establishing the experimental designs, structure evaluative procedures, and compile the results. This individual would be a member of the central administrative office and would supervise an annual publication summarizing the research studies of the entire district. This approach tends to take the suggested projects out of the realm of innovation and forces experimental review. It is to be stressed that this publication would present not only the studies of the experimental college but also those of the other colleges of the district.

FACULTY AND RESEARCH SELECTION

Instructors at the several colleges would submit experimental plans to the director of the experimental college, who would review the various proposals with the assistant director and the research specialist. This review board would then make recom-

mendations to the heads of the other colleges regarding which experiments they deemed most feasible for the coming year. The heads of the other colleges and the review board would serve as a joint committee in submitting the list of proposed experiments for district approval. Upon obtaining this approval, the instructors whose plans were selected would then be notified that they would be at the experimental college the following year.

If only one experiment is selected in a subject area, e.g., science, then the science faculties of the other colleges would be notified of the proposed project. From those who demonstrated interest in this particular study, one from each college would be invited to participate at the experimental college the forthcoming year. Faculty participation at the experimental college, then, would result from one of two procedures—the instructor submitting an experimental plan, or the instructor evidencing interest in an experiment which had been proposed and accepted.

Each faculty member at the experimental college would remain in the catalog of his respective college with some designation next to his name indicating his period of residence at the experimental college. In addition to providing a vehicle for research and an in-service program for faculty growth and development, such a plan contains something of a built-in sabbatical leave. The chance in surroundings, new contacts, and different procedures and contents should afford much stimulation to the staff while the entire district benefits from their efforts.

ENCOURAGEMENT OF INNOVATION

This college should serve as a spur to the other colleges in the district, since at any given moment each college would have representatives at the experimental college, as well as staff members who have just returned and those who anticipate going in the future. This college would not kill experimentation on the other campuses, because it would reserve for itself experiments that would be too costly, time consuming, or functionally disruptive to be carried out at one of the regular colleges. Furthermore, the follow-through of many of these experiments would probably take place at the regular colleges.

SELECTION OF STUDENTS

Since the faculty of the experimental college would be on a rotational basis, it is recommended that the student body have a similar arrangement. Students would enroll at the experimental college for either one or two semesters and during that time would be required to take all their course work at the experimental college. The students would have access to counselors at the experimental college, since the guidance divisions would also want to test new approaches and would rotate like the faculty. In this way a greater control could be exercised over the various experiments in progress.

Just as the faculty would remain identified with one of the regular colleges of the system, so would the students. Graduation would always be from one of these colleges and registration also would take place at the college of the student's choice rather than at the experimental college.

The experimental college would draw from each of the colleges of the system for its student population just as it does for its faculty. If there were four colleges in

operation, then perhaps one hundred students from each of these colleges would be at the experimental college. In a seven-college system, such as is planned for Dallas, Texas, this would mean that the experimental college would have a maximum enrollment of seven hundred students. Since the various experiments in instructional methods would involve all student levels, the student body should consist of remedial students, average students, and honor students and should draw from the different academic and occupational programs. Perhaps the best method for choosing students would be one similar to that utilized in faculty selection—call for volunteers and from these volunteers pick a stratified sample.

THE CURRICULUM

In a comprehensive community college, the problem of selecting students for experimental programs to be held in a separate facility raises a question about the vocational area where specialized and expensive equipment often is required. For instance, a student majoring in data processing would not be able to take certain computer courses at the experimental college; this also would be true for electronics and like subjects. On the other hand, many technical and occupational courses involve relatively inexpensive mobile equipment and do not have to be limited to one or two colleges: business subjects (typing and shorthand) and drafting are cases in point. Students in programs that involve work-study—for example, mid-management and office supervision—could easily take all their course work at the experimental college and continue their outside work experience.

Most of the work at the experimental college would be in academic subjects; however, technical and occupational students also take academic subjects, such as communications, social science, natural science, etc. Some adjustment in scheduling would permit most students in occupational programs that require specialized equipment to take one semester at the experimental college. Course work during that semester could be limited to subjects which do not involve elaborate apparatus.

The essence of this plan is that it does not limit experimentation to the confines of on-going, organized institutions which might tend to discourage what is difficult or disruptive to implement, nor does it relegate all innovation in a multi-campus system to one college which then becomes the district's experimental showcase. The rotational aspect keeps the experimental college an integral part of all the other colleges, and its accomplishments, through the shared faculty, would reflect upon all the institutions of the district.

If a district expects to grant a high degree of autonomy to each college and to encourage each to make its unique contribution, this will likely result in competition among the colleges (healthy or otherwise). A cooperative effort at the experimental college should counterbalance this competitive attitude, facilitate an exchange of information beneficial to all students of the district, and serve as a uniting factor beyond that created by a central administrative body for overall management.

WALTER T. COULTAS

LITTLE RED ELECTRONIC SCHOOLHOUSES

Is my district offering equal junior college educational opportunities to all the potential students of the district? This single question concerns many of us. Especially is this true of the administrator who is responsible for a district ranging from mountainous, sparsely populated areas to high density, urban centers and stretching for hundreds of miles from one boundary to another.

THE LOS RIOS JUNIOR COLLEGE DISTRICT

The Los Rios Junior College District is located in the central part of California and extends from Lake Tahoe to Davis, a distance of approximately 120 miles. Portions of five counties are included in the area, totaling 2,600 square miles. Three additional contiguous areas are considering annexing to the district. This would add another 1,000 square miles. Geographically, the eastern part of the district is mountainous, sparsely populated, and encounters transportation difficulties in the wintertime. The western section is made up of the Sacramento Valley. There are a few large centers of population but many small communities in the mountainous area. The district serves a population of approximately 770,000, with an estimated increase to 1,125,000 expected by 1975.

At the present time there are two junior colleges in the district, Sacramento City College and American River College. Three colleges are to be added, two to be opened in 1970 and one in 1972. All of these colleges are to be located in the "flat lands." Even with the construction of the three new colleges, there will be pockets of population where junior college opportunity will not be readily accessible.

Many districts have endeavored to solve the problem by busing students, developing housing facilities, establishing branch classes or branch locations, or paying mileage to students coming from long distances. Los Rios is using a combination of all four, and yet our experience with a branch operation in Placerville indicates that we are still not meeting the total need.

THE PLACERVILLE BRANCH OPERATION

The Placerville operation was initiated in September 1966 to determine the feasibility of future satellite operations. The El Dorado County Fairgrounds were taken over, and four relocatable classrooms were moved in. The result was an instant campus, complete with a race track and rodeo arena. Six full-time instructors plus visiting part-time instructors from American River College made up the staff. The course offering consisted of thirty-five academic subjects. One-hundred and seventy full-time students were enrolled, with about the same number in the evening. Fifteen students dropped out in the first semester. The spring semester day enrollment

increased to 210. A study of the beginning class indicated that 105 would not have been able to continue their education if the program had not been established. Projected enrollment will be over three hundred full-time students in September 1967. Establishment of the program in Placerville has brought concomitant values. Pride of the community in the total operation, student loyalty and enthusiasm, and expanded cultural activities are just a few marks of the success of the project. The success of this operation confirms our belief that something else is needed and, thus, our idea on the Little Red Electronic Schoolhouse.

THE PLAN

A survey of the district indicates six outlying pockets of population that would support fifty or more day students. These pockets are so located in the district that, for all intents and purposes, it would be impossible for the students to commute from home to one of the five colleges. In each of the five designated areas, a one-room building with a storage and electronic control facility would be constructed. To add to the flexibility, these classrooms should be of the relocatable type. Each of the rooms would be stocked with thirty carrels equipped for audio-tutorial study with approximately one hundred channels to the adjoining control room. The control room would be connected through leased telephone lines or microwave facilities to the district educational resource center. Each of the one-room buildings would be staffed with a tutor-counselor and an electronic-library aide.

The district educational resource center would be staffed to develop audio-visual and curricular materials, programmed tapes, video tapes, and supplemental material. All software not purchased outright would be developed by consultants on our own staff. The center would serve the five colleges as well as the little red schoolhouses.

A mobile library and a mobile science laboratory would be stocked and follow a regular schedule of visits to each facility. Students in the vocational occupational areas would take much of their work by audio-tutorial method and then be brought into one of the colleges for the "hands-on" operation, which could be scheduled for whatever amount of time is needed to develop necessary skills. The time could vary from one week to a full semester.

The program as outlined is in the developmental stage. The first four steps have been taken: (1) the establishment of the Placerville operation; (2) the employment of a director of community service in the central office, with one of his responsibilities being to develop advisory groups and ascertain the specific needs in the five target areas; (3) preliminary planning for an audio-tutorial laboratory at the Placerville facility, to determine feasibility and appropriate course offerings at outlying little red schoolhouses; (4) preliminary planning on the educational resources center.

Many details have yet to be worked out; budgets have to be developed, plans for satellite buildings have to be drawn, and staffing problems have to be solved. We are convinced, after our experience at Placerville, that the "Little Red Electronic Schoolhouse" is feasible and a necessary addition if we are going to meet the challenge of equal educational opportunity for all in our district. We are also convinced that, if we move in the direction I have described, we cannot be governed by past tradition but must take into consideration practically every topic that has been discussed at this conference.

MARIE Y. MARTIN

AN EXPERIMENTAL COLLEGE WITHIN A MULTI-CAMPUS DISTRICT

Three quotations, one from a college professor, another from a writer for *The National Observer*, and the last one from a student activist leader, indicate that our publics are watching us:

The colleges know they must change, sometimes drastically, but higher education is essentially conservative and change does not come easily.¹

Innovation, experimentation, reform—these are crucial, and pity is that, apart from a few noteworthy experiments, there is no real innovation anywhere. Wherever one looks, there is the same vacuum of leadership, the same failure of nerve.²

In the past few years, we have seen a variety of campus movements developing around the issues of university reform. A few of these movements sustained a mass base for brief periods. Some brought minor changes in campus rules and regulations. But almost all have failed to alter the university community radically or even to maintain their own existence.³

Therefore, as administrators, if we were hesitant about doing some innovative things, certainly our public, our faculty, and our students serve as motivators for us.

In L.A. we don't have an experimental college, per se. The Los Angeles Junior College Administrators suggested some months ago that:

An experimental college should be established in the district to explore and try out developments and practices for the improvement of instruction and more effective utilization of resources. The experimental college should become a major resource agency for encouraging experimentation in the other district colleges.

I think for a short while we envisioned that the new Southwest College (popularly known as Watts) might fill this role. But it is opening in September more or less with the same type of training as the other colleges in the district.

In L.A. a great deal of autonomy is enjoyed by the colleges individually and collectively. If we conform more often than we experiment, it is because we want to be more like one another than we want to be different from one another. We serve as real "security blankets" by being able to say, "Well, at Valley they do it this way." And what's good for Valley is good for East.

Final examination schedule—one college decided to change from a week-and-a-half to a two-week schedule. Immediately our district senates went into action to

¹ William Arrowsmith, professor of classics, University of Texas, in *Education U.S.A.*, Oct. 20, 1966.

² W. Hugh Stickler, ed., *Experimental Colleges* (Tallahassee: Florida State University, 1964), p. vii.

³ Carl Davidson, vice-president, Students for a Democratic Society, informal notes to college presidents.

get all colleges on the same two-week schedule. Same thing happened in our English departments. One college experimented with a twelve-hour load, and of course, the faculty at Pierce want a twelve-hour load.

We do have a small central office staff which encourages us to operate our own colleges—and which sees itself as a service unit for the colleges. In an effort to develop a plan for the orderly investigation of educational processes and procedures, our assistant superintendent appointed a Committee on Research and Experimentation headed by one of the presidents. This committee was composed of administrative and faculty representatives from each college. The purpose of the committee is to assist any person or groups interested in experimentation. In actual operation, the Committee on Research and Experimentation's main functions, so far, have been:

1. Developing programs for experimentation within the seven colleges—and we have proposals from the seven colleges.
2. Writing the proposals.
3. Presenting these proposals to the U.S. Office of Education and various foundations for seed money and grants.

The plan for implementing the experiments is simple: Each project is district-wide, with each president responsible for the project assigned to his college.

We expect that seven projects can be acted upon simultaneously without unduly taxing the resources of any one college and without creating a large central organization. Underway at present, with a \$46,000 federal grant, is Project Summer '67 at Los Angeles City College. Under the direction of Dr. Glenn Gooder at the college, 150 students have been recruited from all over the district to attend the college this summer. These 150 students are separated into three groups of fifty each: (a) fifty culturally disadvantaged; (b) fifty bilingually handicapped; (c) fifty low achievers. Six teachers, and one student tutor for each five students, were selected from the various colleges.

There are funds for the continuation of this program on each campus in the fall semester. The cadre of faculty and students are expected to return to their original campuses in the fall and continue the program.

Like all colleges, we are computer minded—but, also like all colleges, we could not afford an IBM 360 computer for each of the seven colleges. One has been installed at one of the colleges. Personnel from the seven colleges are exploring methods of converting administrative tasks to the computer. They are developing a time schedule for the use of the computer and they expect to come up with the answer to the question, is it better to have one 360 on each campus or will a district computer center be more effective. The committee will rely on the work already done at such colleges as Bakersfield, San Mateo, Foothill, Chabot to help them answer this question.

A third experiment, which is just getting started, is the result of reading Roger Garrison's survey on current issues in education. You may recall that he interviewed some seven hundred teachers throughout the United States, who felt that a most pressing need was improvement in administration. It is also a result of the fact that administrators recognize the nationwide trend for faculties and students to have a voice in making policy.

Academic senates with a catholic concern for all administrative matters, matched

by faculty apathy, are finding administration not so simple. The trend in several colleges to elect department and division chairmen on a rotating basis also points up the need to train potential administrators.

The project, which will be located at Pierce College, will:

1. Seek to identify, orient and train potential administrators.
2. Provide opportunities for present administrators to move into more responsible positions.
3. Maintain the efficiency of the present administrative staff.

The program is designed to supplement the formal education program conducted by universities and colleges. Instead of simulation, role playing, and other techniques used in educational programs, the participants will be involved in observation, planning, and decision making on a day-to-day basis.

Our greatest opportunity for experimentation lies ahead. A separation of the unified and junior college districts has been approved for Los Angeles. Whether we go for strong central organization or develop greater autonomy is a question we must answer as we gain our independence from the present central office staff which serves both districts.

WALLACE T. HOMITZ

A SENSORIUM

This fall, Laney College will begin some experimental classes, under a grant from the School Planning Laboratory at Stanford, in art, English, economics, and some other subject areas, which will seek to determine whether the controlled manipulation of a very sophisticated classroom environment has any palpable effect on the ability of junior college students to learn art, English, and economics.

These experiments constitute a developmental step in the pursuit of an idea—an idea which has its beginning in some very respectable learning theory (Dewey, Piaget, Bruner, Gardner Murphy, and others) and in some current, as yet unorganized educational speculation (Marshall McLuhan, Arthur Pearl, Peter Demianovich Ouspensky, to name a few).

As with most ideas, form, in our case, antedated substance: our idea was the outgrowth of an immediate, practical problem. We were planning a new campus for downtown Oakland, and we had included a "standard" planetarium, nothing fancy, just a planetarium, like hundreds of others which junior colleges are installing now to be "in." But it did represent an \$85,000 investment, and we thought this planetarium should have some added capabilities. We thought first about adding a carbon-arc light source atmospherium as at the University of Nevada, and from then on, wild-eyed day dreaming took over.

By the time we finished, we had designed a \$750,000 facility that had no relationship to fifteen other buildings of the new main plant, economically, aesthetically, or educationally. What we were struck with is that, in a twentieth-century *new* campus worth almost \$25 million, we were not improving substantially on the character of the teachers' work space over what the privadocent in the eighteenth-century university had to contend with.

The average classroom today, we felt, was a direct replica of the classroom of three hundred years ago: four walls, fairly comfortable seating, poor lighting, a blackboard, a teacher's desk. It may be advanced upon its prototype by virtue of improved lighting, a demonstration table, a movie screen. But the teacher's control of his classroom environment is still severely limited. While he may call upon slide images (usually in single, rote fashion), overhead projectors, motion pictures, closed-circuit T.V. or programmed software to collect his students' attention away from outside noise and other distracting influences, there is virtually no way the instructor can be certain that he can break the associative, compulsively mnemonic structures which drive his students to react to familiar stimuli. He cannot, by control of sound, or smell, or movement of air, or visual imagery produce an experience so powerful

that the ordinary, conditioned reflexes of some of his students, at least, will be forced to adopt new ways to adjust to the stimuli which he introduces into his transaction with them. Analogical imagery, synchronization of sense awareness, illumination, acoustical/temperature control, and re-creation of experience directing itself to multiple sensory channels are powers outside the functional boundaries of the ordinary architectural configurations of the classroom.

The word "sensorium" simply implies access to the total sensory apparatus of the student. In our sensorium, we conceived the idea of giving a classroom total environmental-control capability.

We would have the Spitz carbon-arc light source atmospherium, but we got Spitz interested also in designing a new scrim or membrane for projection which would also allow us to destroy the ordinary horizon line found in the orthodox planetarium. We would have projection capabilities for 3-D, multiple-bank slide projectors, simultaneous front, side, and rear motion-picture projection, and traveling and stereophonic sound.

We would have sophisticated atmospheric control—ability to range from 40 to 80 degrees in a matter of minutes, at the same time that we would control wind velocity. We would have aromatic control—a complete selection of aromas and scents to be propelled through the air-conditioning system on programmed call.

We would have touch control—a wheel attached to specially designed seats would be outfitted with a continuum of textures: from rough to smooth, from glass through fur, to hardened emery surfaces—the "feelie" of Aldous Huxley's *Brave New World* (and now Phillips Andover Academy), if you like.

We would have taste control—specially designed pills of several layers constituting a continuum of taste from sweet to sour. And we would have motion and color control: lighting would be available in any tint to color the atmosphere and we could shimmy or tilt the entire cantilevered audience if we chose, along the lines of simulators used by NASA at the Houston Space Center.

This was a revolutionary new learning space, and we had no end of encouragement from literature which described similar experimentation at Spitz, NASA, Eastman Kodak, Stanford, Rensselaer Poly, Disneyland, and others.

When we drew our specifications, we tried the idea on a few people. Reaction was mixed.

One fellow, obviously mastoconcupiscent and the victim of a pernicious political hang-up, resented both the geodesic-dome structure and the total idea. He said it was all a communist plot. A portion of the faculty wrote an open letter to the school paper and demanded to know who was to be the dean in charge of *brainwashing*.

We generated tremendous interests, and we found we had struck a nerve that led back to a great deal of what had been related in *our* thinking to the very leading edge of current research in educational theory.

I am quoting from the conceptual framework which we generated to accompany our request for a grant to the School Planning Laboratory:¹

The conceptual framework used to elicit the main assumptions used in the present context are derived from Benjamin Bloom (1, 2), Gardner Murphy (3), and Alfred Upton (4).

¹ Roger J. Ferragallo and Wallace T. Homitz, *Total Environment Learning Laboratories: A Proposal to Investigate the Effectiveness of Controlled Manipulation of Classroom Environments in the Teaching of Junior College Subjects* (Oakland, Calif.: Laney College, 1967).

Bloom's *Taxonomy of Educational Objectives* purports to classify educational objectives within three domains—cognitive (intellectual), effective (emotional), and psychomotor (muscular). While this is an admirable attempt to clarify the confusion regarding the extent or degree to which we wish students to appropriate knowledge or skills, it takes no real cognizance of the fact that learning is quite likely a simultaneous operation of all three domains (and perhaps others unknown to us, totally irrational and/or instinctive). Each experience is a gestalt, composed of a field of integers from *each* of these domains, and, depending on factors which are not yet clear to us, is a field of constantly fluctuating commitments of energy running to each of these domains. There is no guarantee that a purely psychomotor experience, for instance, will not be approached almost totally affectively (a boxing match in which one of the principals is mortally afraid), or almost totally intellectually (a businessman trying to learn how to dance). It is inconceivable that *any* experience involves only one domain to the exclusion of all others: we are, after all, always encapsulated in a physical posture and instinctively breathing and exchanging cellular, physical energies. The problem arises in determining the *proper* commitment of energy from each of the involved domains demanded by each particular experience for its most effective realization.

It is important at this point to recall some of the significant points of Bloom's other monumental work, *Stability and Change in Human Characteristics*:

1. "The early years—probably until age seven, and then extending in diminishing proportion until around age 13, are the crucial years for learning.
2. "By an average age of about two, it seems evident that at least one-third of the variance at adolescence on intellectual interest, dependence, and aggression is predictable. By about age five, as much as one-half of the variance at adolescence is predictable for these characteristics.
3. "The absolute scale of vocabulary development and the longitudinal studies of educational achievement indicate that approximately 50 per cent of general achievement at grade 12 (age 18) has been reached by the end of grade 3.
4. "Research raises serious questions about the value of educational remedial measures at later stages.
5. "The nature of the learning environment is most critical during the periods of most rapid change in learning—the early years of school. It is also likely that the greatest changes may take place in the individual when he enters a new level of school environment, that is, high school or college, *if the new environment is different from the previous one, and if it is a powerful and consistent learning environment.*"

The basic premise derived from these findings is that learning is more rapid at the earlier stages of life because it is a concomitant of more direct—i.e., *purer*—experience of the world. The child is more integrated (less disconnected) then: his affective, cognitive, and psychomotor domains partake more fully and more efficiently in the process of experience. His experience, without question, is more *real*, in the sense that he is more fully witness to his experience. (For a fuller treatment of teaching based somewhat on this very acknowledgment, you can investigate the literature of the Waldorf Schools, Sacramento, and Northridge, California, or Adelphi College, Long Island).

If this is true, what is the inverse of the proposition? Why is there the diminution of experience of reality as life progresses?

The answer must lie in the gradual development of the child's personality, which is (1) largely society—and not reality—oriented, and (2) shaped by progressively greater and greater intellectual (cognitive) experience as the child goes on in school, almost in direct contravention to his "natural" inclination to bring a totality of all domains to each of his experiences.

If we grant that all of this be true, what, then, is teaching? Teaching must be the provision of those experiences which permit the student an understanding of his universe (however limited) by means which best facilitate a direct, *total* exposure of the self to that experience. We are, in effect—with motivation, with inspiration, with techniques—attempting to loop back and reconstitute the newness of each childhood experience for the student

in *this* experience, now, in this subject matter, in this discipline. We are trying to get him so connected that the experience is simultaneously *felt, thought, and moved through*.

How can this be done? It probably cannot be consistently and successfully done with individuals, let alone groups. But it has the possibility of improving present teaching effectiveness by impressive degrees if it only succeeded some of the time with some few of the people in our classes. It may be that the witness of one real experience carries with it the illumination of great segments of previous experience because it does in fact reorient the significance of all experience. How done? By some conscious manipulation of the impressions which reach the sensory gateways in the learning experience. Bloom asserts that, "the greatest changes may take place when the student *enters a new level of school environment*." If the thresholds of sensory reception can be altered frequently enough during the learning experience, it seems likely that academic substance, which forms a part of the experience, will be received in a new way—and have a greater possibility of being apperceived and retained with greater clarity and deeper understanding. In the instance of review material, this method seems to bear substantial promise, and with new material the possibilities seem even more encouraging.

Well, that's our idea. I do not know whether it is tinkering or revolution, but as the man said, "It's something to think about . . ."

J. W. McDANIEL

SIDEWALK COLLEGE

"Sidewalk College" is a modest proposal for community college design that I described at a meeting in Palo Alto. The proposal is so simple and each part of the design is so familiar that I suspect you will think it a return to the past rather than a dream for the future.

WHAT IS SIDEWALK COLLEGE?

Sidewalk College is a community college that makes full use of community resources to operate college courses and college activities *within* a community. It differs from a conventional junior college mostly in its self-perceptions, motivations, and physical plant. Since this presentation is intended to be merely an introduction to this deviant model, description can be facilitated by comparison of a few characteristics ("snapshots") of Sidewalk College with those of a conventional college. This comparison is shown in Table I.

TABLE I
"SNAPSHOTS" OF SIDEWALK COLLEGE
(IN COMPARISON WITH A CONVENTIONAL COLLEGE)

| Snapshot | Suburbia College | Sidewalk College |
|--------------------------|--|--|
| The Model | Harvard | Agricultural Extension Service |
| The Campus | A visible "sight," self-sufficient, permanent, prestigious | "Main Street," any available usable facility, temporary—faceless |
| Instructional Facilities | All rooms and equipment specially designed for instruction | Production spaces and equipment adapted to instruction. Modern fixed and mobile equipment when needed |
| Library | Building and book collection special for campus | Town library with college additions to book collection and staff; full use of mass media |
| Curriculum | Comprehensive. Most courses for credit, offered at fixed times, under "standard" regulations | Comprehensive. Credit and noncredit, flexible as to length, time, location, prerequisites, and standards |
| Faculty | Late-model college professors, full-time | Best obtainable for each course, mostly part-time, local or import |

| Snapshot | Suburbia College | Sidewalk College |
|--------------------------|---|--|
| Athletics | College teams, college facilities, restricted eligibility | Town teams, community facilities, college coach, open eligibility |
| Other Student Activities | Campus-centered, closed groups, college leadership | College participation in on-going community groups |
| Goals | A <i>great</i> college. A strong image. A controlled "educational" environment designed to lead a closed group of students toward faculty-defined goals | A good community. An effective educational service. The training department of the community. Coordination of community resources and professional competence in meeting vocational, civic, and cultural training needs of the community |
| Budget Emphasis | Heavy emphasis on physical plant and other "trappings" as well as on teaching costs | Most of the money on teacher salaries |

Close study of the characteristics of Sidewalk College will reveal none that are wholly new and few that are not found in most public junior colleges. In California, at least, the evening divisions, or extended-day programs, have for years taught courses in off-campus facilities, hired part-time teachers, offered special short courses, participated in community activities, and tried to identify themselves with local training needs. The difference is that Sidewalk College is not a *division* of the college, it *is* the college. The sideshow has become the main tent. The college is not a place, it is an educational service.

WHY CONSIDER THE SIDEWALK COLLEGE MODEL?

My table of "snapshots" attempts to put together a description of a "low-institutional-image" junior college model in comparison with a conventional model. New junior colleges are coming into existence almost weekly. Some of them are in big cities, some in small towns, some in population regions. Some of the communities are wealthy and can afford any level of education they wish. Others have great difficulty in meeting the on-going operational costs of a college and yet are faced with heavy capital costs in building the campus for a conventional college. Can the Sidewalk College concept be of use to any of these newly developing community colleges? Can this new model help on-going colleges meet some of their insistent problems? Table II shows some of the possible answers to these questions.

TABLE II
THE SIDEWALK COLLEGE MODEL

| Some Frequent Challenges to Colleges and Communities | Potential Contributions of Sidewalk College |
|--|--|
| Extend post-high-school education to still more youth | Provide the housing for expansion. Low physical facility cost should reduce per student cost. Maximum flexibility should facilitate meeting needs of students not now attending |
| Provide education for minority segments of the population | Flexibility in location, in program, in instructional staff can improve out-reach |
| Keep up with technological change by re-educating workers every seven years | Start classes when needed, use teachers from industry, take education to plant, build courses from job analyses |
| Provide education for the special needs of groups such as young mothers, single parents, retired people, volunteer leaders | Since Sidewalk College is <i>in</i> the community, needs will be better known. Courses can be short, directly relevant to need, taught by in-group leaders, peer-group motivated |
| Increase the involvement of students (reduce impersonalization) | The student-in-community setting can interrelate student interest and community need. Low capital costs can reduce class size. Peer-group motivation can be maximized |
| Make full use of advanced communication technology | Savings on buildings, landscaping, and parking can free resources for most effective equipment. Full community coordination can increase use of commercial mass media |
| Educate for value as well as for fact | Since value learning is highly situational, in-community setting can help. Co-mingling of education and community life will avoid some value conflicts. Flexible courses can focus directly on value |
| Improve physical fitness and enjoyment of recreation | Full use of community facilities can increase carry-over. In college, P.E. and postcollege recreation will be a continuous program of similar activities in the same setting |
| Improve political knowledge and political behavior of citizens | The community itself can be the laboratory for study of government and volunteer agency. Courses can be developed to meet specific needs. Participation in civic life will be built-in |
| Improve interpersonal and intercultural knowledge and understanding | College classes will be a cross-section of the community with full opportunity for courses to focus on communication. Involvement of ethnic group leaders can lead to continuous dialog |
| Make learning important | Conventional colleges are caught in a status mill. Grades, credits, degrees, become the goals. Learning is downgraded. Freedom from focus on institutional ego can reduce the influence of false goals. Community involvement in the college can take off pressures. The entire community can aim at becoming a "community of scholars"! |

IS SIDEWALK COLLEGE AN IMPOSSIBLE DREAM?

Standard operating practice for starting a new junior college in California is to get two hundred acres, fifteen to twenty million dollars, a team of architects, and a package of "recommended standards" for space allowances per F.T.E. Finding two hundred acres almost guarantees that the site will be out of town. Local pride, the competence of the architects, and the American tradition that our great buildings are schools almost guarantees that the end result will be a showplace. There will be enough uniqueness of appearance to give identity, enough equivalency of space allotment to guarantee a "standard" program. Can a community deviate from this model? (And, should it?) Can function be stressed even more than form? Can maturity replace local pride in determining the character of a community college? These are tough questions, and they relate to the future of models like Sidewalk College.

The enormous importance of education, the search for scholars by other kinds of colleges, the conflict for dollars, the search for basic values that is now going on in our culture lead me to the conclusion that a service-centered educational program like Sidewalk College has some hopes as well as some merits. Decentralization of vocational training is with us now. In my own town, the telephone directory lists four new vocational schools within six blocks of my home! Churches, volunteer agencies, and industries have training programs. Sidewalk College is here now!

Sidewalk College must have its symbol. That symbol must be great teaching. Not Mark Hopkins on a log, but Mark Hopkins with the tools of modern communication, working *within* a community to make that community better.

SECTION V

Evaluation

ARTHUR M. COHEN

TINKERING OR REVOLUTION: A CONFERENCE CRITIQUE

A basic problem at this Conference on the Experimental Junior College has been one of definition. What is the experimental junior college? Lamar Johnson mentioned that "in the realm of American education, no experimental college is a junior college." He referred to the list of colleges usually considered "experimental"—Goddard, Sarah Lawrence, Antioch, and the like—and remarked that none is a junior college.

One could take the opposite view, however, and say that no junior college is anything *but* experimental. The entire junior college movement is itself a very broad experiment in public higher education. Of course, controls are lacking in experiments of the breadth and magnitude of the junior college experiment (we don't know, except in the very broadest sense, what difference it would make in American society if the community junior college had never developed), but the experimental condition remains: "Is it possible to construct and maintain educational structures to offer postsecondary education to everyone—to all, with no exception?" The junior college in the past fifty years or so has answered, "Yes." The experiment, in that sense, is successful—it is possible. We have resources to offer postsecondary education to everyone. No controlled evaluation is necessary. If that's what we set out to do originally, we have done it.

Then, what's the problem? Why are we all innovating? Lamar Johnson called for change and innovation in large numbers of junior colleges in all parts of the country. Why? Are we dissatisfied with the job we're doing? What does "change for the sake of improvement" mean? There has been evidence of much change, but for what?

Delta College excited its faculty by sending it all over the country visiting centers of innovation. Earlier in this conference, Donald Laughner mentioned the outcome—"a healthy skepticism" and "an atmosphere of change." We have heard about audio-tutorial, team-teaching, faculty visiting other campuses, and other attempts to bring about this "atmosphere." Perhaps the principle is that change is exciting; consequently if we keep changing, we keep exciting ourselves. The extension of that is, if we're excited we'll do something called "a better job" for students, or at least we'll better enjoy our own work, our own lives.

There may be deeper, more basic (or at least more palatable) reasons for changing, for innovating; but, before considering them, let us look at some of the reports presented here. If we examine the common threads and premises on which this conference has been based, perhaps some of those deeper reasons will appear.

Everyone here seemed to agree that change should take place in the junior college; it is a positive good of itself. As has been said at this conference, "it's suicide for a president to say he is not for change." The worst indictment one can make of an institution is to say, "they're doing things in the same old way over there." Not "nobody's learning anything," but "they're doing things in the same old way." That's the way to indict an educational structure. Change as a positive good has been one theme.

Another conference concern has been "how to stimulate innovation." Allen Crawford mentioned developing a standard form for reporting innovation to the administration. Making money available, as in St. Louis's budget for innovation, is another way Frank Bousma spoke of an innovations center which was developed at Miami-Dade so that faculty "could see what's going on in other departments." Donald Laughner reported on taking the faculty around the country as a mode of stimulating innovation. At Kendall College, a "vice-president in charge of heresy" was appointed as a change agent, and several other techniques for fostering innovation were reported.

What is the nature of some of the changes which have been reported here? There are several ways of classifying them. One is to separate them into two categories represented by changes in administrative procedures and changes in teaching techniques. Some of the administrative innovations we heard include: no separate registrar's office and no separate divisions at Arapahoe College; an electronic intercampus communication network in Los Rios district; several instances of moves toward breaking down disciplinary lines; and work-study programs. On this latter point, Dr. Johnson reported seeing work-study programs beginning in many different junior colleges: Roger Williams, Rock Valley, and Colorado Mountain, to name a few. Turning over responsibility for student advising to the faculty is an administrative innovation at Golden West College, as is released time for faculty to develop programs at St. Louis. Dallas has a plan to rotate faculty among its several campuses—another administrative device.

Changes in teaching procedures are also many and varied. Team-teaching, shifting class sizes, and alternative curricular arrangements were mentioned. A tutorial system has appeared in Arapahoe College, and Roger Williams and Western Piedmont are considering it. The audio-tutorial method has gained ground—Oakland Community College and Mt. San Jacinto are committed to it, Roger Williams and Golden West have sections of it, and Abraham Baldwin and Colorado Mountain are talking about it.

That is one way of classifying change—separating it into different administrative and teaching procedures. Here is another way—innovations which are activity-centered versus innovations which are ends-oriented. Although there are *many* more of the former than of the latter, there are stirrings of manipulating ends. Santa Fe Junior College's operations, Dr. Johnson reported, will be based on "definitions of desired student behavior." Miami-Dade seeks "analysis of content in terms of behavioral objectives to be required of the student." "Course objectives stated as student behaviors" is a statement in Western Piedmont's course manual. There are others. And, of course, objectives were rather clearly defined at Oakland and at Mt. San Jacinto College.

Most innovations, however, are in techniques, means, methods, and media, not in ends. Why not consider manipulating ends as an innovation? There are many reasons for defining student behaviors desired as a result of instruction. Most obviously, ends should be defined so that media may be organized into meaningful patterns. It's easy for a person to stand in a room with many other people and talk about something which interests him very much. He doesn't need objectives; his own activities are his ends. But when replicable media must be produced—tapes, films, programs—one must structure sequences. Then one either defines ends to which those media will lead or faces the hard reality that his media are but "experiences" or "environment" or "activities" in which his students will engage for some unknown purpose. That's an acknowledgment educators are not yet ready to accept; therefore, they must start with objectives.

A second reason for specifying ends is so that the role of the teacher may be redefined. A teacher teaches to the extent that he moves his student toward his objectives. No objectives, no teaching. Several speakers alluded to the redefinition of teachers' roles. Bill Perry and Lou Bright mentioned that we need to consider now what the role of the teacher will be in the "electronic revolution." John Goodlad, Dean of the UCLA School of Education, is concerned with man-machine accommodation in the educational system to come. Defined ends of instruction can help define the role of the teacher.

Another reason for specifying objectives (perhaps even more valid) is that by defining behaviors for our students, we, by implication, define them for the larger society. People representing the entire community pass through our institutions at one time or another. To the extent that we shape them, we shape the community. That may be one of the truly significant contributions of the junior college movement—defining behavioral goals to which the community may repair. For our communities are very much in need of such definition. These goals must be relevant—learning achieved at the junior college must fit into the student's vision of what constitutes the good life—but shouldn't we investigate the effect the school has on the student's life and tell him? That is the element of purposefulness which Joe Bishop and Al Canfield said was essential.

Most innovations and experiments posed here revealed situations in which existing practices, of teaching, budgeting, scheduling, had been altered. All took place within the framework of existing institutions. The one idea mentioned that seemed to question the *premises* on which existing practices are founded was that offered by J. W. McDaniel, of San Bernardino Valley College. The idea of a sidewalk college is not new. In fact, Mr. McDaniel said, "the proposal is so simple and each part of the design is so familiar that I suspect you'll think it a return to the past rather than a dream of the future." He mentioned junior colleges' futile drive for prestige and for image, their feeble attempts to live up to Harvard as a model. He spoke of the expensive buildings currently seen as being necessary to the junior college as giving way in the sidewalk college to an institution which would use "any available useable facility, temporary—faceless; the library as that shared by everyone in the community. Athletics would be a team representing the town; the campus would be main street." He did acknowledge that, in California, evening divisions have for years taught courses in off-campus facilities, hired part-time teachers who offered

special short courses, participated in community activities, and tried to identify themselves with local training needs. Dr. Kintzer also mentioned that as a characteristic of evening divisions. But, as Mr. McDaniel said, the sidewalk college should not be a division of a college, it should *be* the college.

I have but one criticism of Mr. McDaniel's sidewalk college. It doesn't go far enough. Not far enough away from the elaborate structures we've built under the guise of providing opportunity for all. I would ask him to change one word. He said, "Sidewalk College also must have its symbol; that symbol must be great teaching." I would change that to: "Sidewalk College also must have its symbol; that symbol must be great *learning*." If every definition of "teaching" included the term "learning," we could assume that "great teaching" translates to mean "many people learning many things." But, in practice, that's not the case. If it were, we would have heard here more evidence presented of innovations which brought about demonstrable, evident learning and fewer which shuffled methods of administering programs and altered techniques of presenting data to student audiences.

For that is precisely what has been missing here. If those who reported at this conference may be deemed representative innovators, "learning" is *not* what junior colleges are experimenting with. Why? Isn't student learning our business? Dr. Canfield said, "Causing student learning is a complex business; if the faculty believes 25 per cent of the students should fail, no matter the instructional system, that number will fail." Dr. Johnson remarked that on his visit to junior colleges around the country, he "found little interest in Pass-Fail." Why? If we were truly concerned with learning, wouldn't we be less inclined to stand in judgment of our students and to sort them on five- or fifteen-point scales? Is causing learning our business, our main purpose?

Dr. Bright said, "Junior colleges are the only hope for the colleges; within five years they will be furnishing the lead for the university in specifying behavioral objectives." I admire his optimism but I fear some rather deep adjustments will be required before we reach that state. We must move from screening our students to accepting accountability for their behavior, from sorting on the basis of nebulous criteria to bringing significant numbers of students to defined ends. We must move from receiving funds on the basis of students' presence in the classroom to aid on the basis of changes we have made in their skills, abilities, and attitudes. Needless to say, we are far from that ideal.

These, then, may represent some deeper reasons for innovation. Perhaps we change because it brings us closer to the point at which we *can* accept accountability for learning, perhaps because we seek definitions of social goals and ways of moving students toward their realization, or perhaps because we have a nagging suspicion that the vast numbers of our students who "drop out" are trying to tell us something about our own processes.

Innovations and experiments have been reported here on methods, means, media, materials, techniques. These need to be combined with, or supplemented by, experiments on ends, results, outcomes, effects. The institutional identity to which Mr. McDaniel alluded may be found as the junior college becomes known as "the place where learning happens."

But much more than tinkering with techniques must be done first. We need to

know more about how people learn. Here the truly experimental junior college can help by becoming a total learning laboratory wherein ends and means are controlled. We must define learning objectives and bring all students toward them. All students, not just the few who complete our programs—in some cases, in spite of us. Experimental colleges succeed when they do what they set out to do. They have goals; they communicate them; they assess them periodically, religiously; they're not afraid of admitting failure. Shouldn't that concept be part of the definition of the experimental junior college as well?

Tinkering? Revolution? We don't know yet. Revolutions in education come in slow stages. The first revolution in the junior college movement took place when it made postsecondary education available—"opened the doors," as it were. That revolution is rapidly reaching its end. We are seeing the last of it now as Chicago's T.V. College expands, as Los Angeles and other cities open inner-city branches, as Los Rios district goes into the mountains and roots out the last recalcitrant student. Having succeeded in making postsecondary education available in the mountains, in the cities, in the slums, is the junior college now in danger of becoming an institution satisfied with its accomplishment and restricted by its very structures? Is it doomed to rigidity because of its buildings, its rules, its standards and modes of procedure?

The junior college movement grew strong on flexibility, its ability to move into areas of education which were being ignored by other segments of the field. What we've heard here may indicate the beginnings of a change in the movement, a change toward a point at which the junior college takes the next step and accepts as a function the causing of learning. If so, this is the first stage of a revolution. If not, the innovations reported here will prove only to have been a form of tinkering with the nuts and bolts of a relatively inflexible frame. If we move toward *teaching* our students and away from sorting, screening, and judging them, this conference and others like it will have proved to be harbingers of a significant thrust into new ground. If we do not, they will be seen only as feeble attempts to hold back the day when the larger society realizes, as so many of our students already do, that the entire anachronistic enterprise we call formal education has become thoroughly irrelevant.

Dr. Perry said, "All teaching doesn't take place in school." That was quite an understatement, in view of the hundreds of millions of dollars industry spends teaching all sorts of things to all sorts of people! Shall we shift our foci—before the mainstream of learning in America runs out from under what we quaintly call our "educational" structures?

Occasional Reports from UCLA Junior College Leadership Program:

1. Frederick C. Kintzer. *Faculty Handbooks in California Public Junior Colleges* (Junior College Leadership Program, Occasional Report No. 1). Los Angeles: University of California, Los Angeles, 1961. Price, \$1.00.
2. Frederick C. Kintzer. *Board Policy Manuals in California Public Junior Colleges* (Junior College Leadership Program, Occasional Report No. 2). Los Angeles: University of California, Los Angeles, 1962. Price, \$1.00.
3. *Institutional Research in the Junior College—A Report of a Conference* (Junior College Leadership Program, Occasional Report No. 3). Los Angeles: University of California, Los Angeles, 1962. Price, \$1.50.
4. Frederick C. Kintzer. *President's Report in American Junior Colleges* (Junior College Leadership Program, Occasional Report No. 4). Los Angeles: University of California, Los Angeles, 1963. Price, \$1.50.
5. *Establishing Junior Colleges* (Junior College Leadership Program, Occasional Report No. 5). Los Angeles: University of California, Los Angeles, 1964. Price, \$1.50.
6. B. Lamar Johnson, *Islands of Innovation* (Junior College Leadership Program, Occasional Report No. 6). Los Angeles: University of California, Los Angeles, 1964. Price, \$1.00.
7. B. Lamar Johnson, ed. *New Directions for Instruction in the Junior College* (Junior College Leadership Program, Occasional Report No. 7). Los Angeles: University of California, Los Angeles, 1965. Price, \$2.00.
8. B. Lamar Johnson, ed. *The Junior College Library* (Junior College Leadership Program, Occasional Report No. 8). Los Angeles: University of California, Los Angeles, 1966. Price, \$2.00.
9. B. Lamar Johnson, ed. *Systems Approaches to Curriculum and Instruction in the Open-Door College* (Junior College Leadership Program, Occasional Report No. 9). Los Angeles: University of California, Los Angeles, 1967. Price, \$2.00.
10. Ervin L. Harlacher. *Effective Junior College Programs of Community Services: Rationale, Guidelines, Practices* (Junior College Leadership Program, Occasional Report No. 10). Los Angeles: University of California, Los Angeles, 1967. Price, \$2.00.
11. Arthur M. Cohen, in collaboration with Florence B. Brawer. *Focus on Learning: Preparing Teachers for the Two-Year College* (Junior College Leadership Program, Occasional Report No. 11). Los Angeles: University of California, Los Angeles, 1968. Price, \$2.00.
12. B. Lamar Johnson, ed. *The Experimental Junior College* (Junior College Leadership Program, Occasional Report No. 12). Los Angeles: University of California, Los Angeles, 1968. Price, \$2.00.

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